

NUCLEAR TESTING ISSUES

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BEFORE THE
COMMITTEE ON FOREIGN RELATIONS
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NUCLEAR TESTING ISSUES

THURSDAY, NOVEMBER 9, 1989

U.S. SENATE,
COMMITTEE ON FOREIGN RELATIONS,
Washington, DC.

The committee met at 10:06 a.m. in Room SD-419, Dirksen Senate Office Building, Hon. Claiborne Pell (chairman of the committee) presiding.

Present: Senator Pell.

The CHAIRMAN. The Committee on Foreign Relations will come to order.

I am delighted to welcome Ambassador Robinson from the Nuclear Testing Talks delegation in Geneva who are doing work on a special test ban treaty and the PNET verification protocols to bring them, we hope, to an early, successful conclusion.

Today, we will also hear from Ms. Bailey, Assistant Director at ACDA. She will tell us about the administration's response to a request from 41 nations for a conference to amend the 1963 Limited Test Ban Treaty to provide for a total ban on nuclear testing.

I had also requested the Department of State to provide a witness to accompany Ambassador Robinson to inform our committee on the approach the administration intends to take with regard to follow-on negotiations for our completion of the verification protocols. We regret to say the Department has declined to do so.

Nuclear testing is obviously one area in which the President must exert leadership. The apparent disarray on nuclear testing issues must come to an end; otherwise, we will remain mired in politics and programs conceived in the early 1980's before changes in the Soviet Union which have created major new opportunities.

Moreover, I would point out this committee is prepared to meet with and discuss issues whether policy formulation is complete or not complete. In fact, I would hope that the administration is still trying to find its way regarding nuclear testing issues and might even benefit from the discussions with the Congress. A refusal to air the issues will not make them go away. It will reduce the possibility that the wisest and best choices will be made.

Speaking as one Senator, I believe it is appalling that we have made so little progress toward bringing nuclear testing to an end since President Kennedy's dramatic breakthrough in 1963, almost 30 years ago.

It is pathetic that we are still wrestling with TTBT and PNET 13 years after they were negotiated by Presidents Ford and Nixon. I think it is shameful we have not resumed the negotiations during which so much progress was made by President Carter toward a

comprehensive test ban. Sometimes we seem to have a striking and lamentable inability to recognize our true national interests and to pursue them.

I would add to our witnesses that when I get a quorum of the committee here, we will recess the hearing and have a brief business meeting. When that will be, I do not know. I hope it will be about 11 a.m. So, try to keep your statements all as short as possible.

Ambassador Robinson.

**STATEMENT OF AMBASSADOR C. PAUL ROBINSON, CHIEF, U.S.
DELEGATION, NUCLEAR TESTING TALKS**

Mr. ROBINSON. Thank you, Mr. Chairman. I am pleased for the opportunity to present a brief progress report on the Nuclear Testing Talks between the United States and the Soviet Union. The talks have been underway for the past 2 years, and it has been just over 1 year since I met with you here. Very much has happened in the progress of our talks since that time, and I will try to bring you up to date during the testimony today.

Mr. Chairman, I have prepared a statement for the record, and if you will accept that statement I will then just briefly summarize my remarks this morning.

The CHAIRMAN. Thank you. Without objection, the full statement will be inserted in the record.

Mr. ROBINSON. Thank you.

I believe we are now within sight of being able to complete and bring forward for ratification the threshold treaties, the 1974 Threshold Test Ban Treaty and its companion, the 1976 Treaty on Underground Nuclear Explosions for Peaceful Purposes.

A condition agreed to as we opened these talks was that we would not change any of the language within the treaty itself but instead write new protocols which would secure effective verification for those treaties. I emphasize verification is the entire focus for our negotiations.

Much of our work in the talks during the first year was devoted to preparing and conducting a joint verification experiment in which proposed verification methods were used on a trial basis on a nuclear test at each side's test site. This joint verification experiment has proved of enormous benefit to us, and I think the protocols will show a greater depth of understanding in, in fact, more sheer detail than would otherwise have been possible.

I said the work on the protocols have made very good progress. When Secretary of State Baker and Foreign Minister Shevardnadze met in Jackson Hole, WY, near the end of September, they resolved several major outstanding issues, and it now provides a framework for completing the protocols.

The delegation had earlier reached ad referendum agreement on a new protocol to the Peaceful Nuclear Explosions Treaty last November, and all work since then has been devoted to the TTBT protocol which covers nuclear weapons tests.

As my statement shows, we have been able to achieve parallel provisions in the verification methods and procedures between

those treaties. Today, I will stress for you the Threshold Test Ban Treaty provisions in this brief statement.

First, we have agreed that the primary verification activity will be onsite hydrodynamic yield measurement of all tests whose planned yield would exceed an agreed value. For the United States, this is the CORRTEx method of yield measurement. The Soviets have an independent method they have developed as well.

The sides also agreed that one can conduct an onsite inspection of the geology around the point of emplacement of an explosive device for tests above another agreed trigger level provided one is not going to make hydrodynamic measurements.

For weapons tests and with an emphasis to address Soviet verification requirements, each side can also elect to make seismic measurements. We have agreed that the verifying party shall have the right to make seismic measurements at several specific sites within the territory of the side that is carrying out a test.

In addition to these three procedures, we have agreed to provisions which will allow each side to improve its national technical means of verification. Each side guarantees the right to make some hydro measurements each year even if the test yields are below the agreed trigger level.

I believe this package of verification methods represents a sound approach and will achieve our goal of providing effective verification for this 15-year-old treaty.

In Geneva today we are writing protocol language to implement these methods and working hard to resolve all the remaining issues. Although one can never predict with certainty the exact date on which one might complete, I believe we have an excellent foundation for completing our work in time for the summit in Washington next year.

Mr. Chairman, let me stop here, and I will wait for your questions after Ms. Bailey's presentation.

[The prepared statement of Ambassador Robinson follows:]

STATEMENT OF AMBASSADOR ROBINSON

Mr. Chairman and members of the committee:

Thank you for this opportunity to present a brief progress report on the bilateral United States-Soviet talks on nuclear testing, which have been underway the past 2 years in Geneva, Switzerland. It was about 1 year ago that I last met with you. Much has happened in our talks since that last meeting.

I believe that we are now within sight of achieving our goal of providing effective means to verify the 1974 Treaty on the Limitation of Underground Nuclear Weapon Tests (TTBT) and the 1976 Treaty on Underground Nuclear Explosions for Peaceful Purposes (PNET). These two treaties, which limit the maximum yield of all nuclear explosions to 150 kilotons, were signed but never ratified. The issue of compliance with this limit has been a continuing subject of disagreement between the sides, and has been the major stumbling block to ratification over the past 15 years. The United States has observed the 150 kt threshold of the TTBT, but the December 1988 report to Congress on Soviet noncompliance reaffirms previous findings that Soviet nuclear testing activities for a number of tests constitute a likely violation of the legal obligations under the TTBT.

I cannot emphasize too strongly that the entire focus of our talks is *verification*. At the outset of these formal negotiations, the sides agreed to make no changes in the treaties themselves but to negotiate a new protocol to each treaty that would provide for effective verification. The two treaties and their protocols would then be presented for ratification.

At their recent meeting in Jackson Hole, WY, Secretary of State Baker and Foreign Minister Shevardnadze resolved several outstanding issues, which provide a

framework for completing new verification protocols to the threshold treaties. The delegations are now at work in Geneva at Round V of the talks, with two main tasks. First, they are attempting to develop protocol language which will implement the Wyoming agreements. Second, and equally important, they are working to resolve all of the remaining issues concerning these two treaties.

Our work to achieve effective verification benefited substantially from the preparation and conduct of a Joint Verification Experiment (JVE) last year. In the JVE, a nuclear test at each side's test site was used to demonstrate and evaluate proposed verification methods. This "try before buy" approach to verification measures represented a major step forward, and the use of on-site measurements to determine the explosion yields broke new ground for verification of nuclear weapon tests. The JVE explosion at the U.S. Nevada test site took place on August 17, 1988, closely followed by the explosion at the Soviet Semipalatinsk test site on September 14, 1988.

These two nuclear events were both very successful in addressing the goals we had set for them, and they have proved to be of enormous benefit to our work in Geneva. Doubtless the protocols we have been developing show a greater depth of understanding and a greater amount of sheer detail as a result of the experience we have gained through the full range of activities undertaken during the joint verification experiment.

When I met with you last October, the technical experts of both sides were meeting in Geneva to review the results of the JVE. In particular, their discussions focused on the problems that had occurred and how the solutions we developed could be factored into the appropriate sections of the protocols.

Let me now discuss briefly the key provisions of the protocols. In mid-November of last year we achieved a referendum agreement in Geneva on a new protocol to the PNET. Since the two threshold treaties and their protocols are interconnected and must be ratified together, we are holding open the possibility of changes of the PNET protocol until the TTBT protocol is finished. However, based on reviews of the text, we believe the PNET protocol is substantially completed. Any changes are likely to be of a minor nature.

The principal verification activities in the new protocol for explosions for peaceful purposes are the use of direct onsite hydrodynamic yield measurements for all explosions whose planned yield exceeds an agreed trigger level. For the United States, the hydrodynamic measurements would be made through a technique called CORRTX, which is the most accurate, nonintrusive method we have identified for verification purposes. It used a coaxial cable placed into the same hole as the explosive device. The yield of the explosion can be directly determined by measuring the speed with which the rapidly expanding shock wave from the explosion crushes the cable. The PNET protocol also provides the right to conduct onsite inspection of the geology around the explosive point. The Soviets would have reciprocal rights to use similar verification techniques, although of course the United States abandoned its peaceful nuclear explosion program more than 15 years ago.

Since last November our work has focused exclusively on the protocol to the Threshold Test Ban Treaty, (TTBT) which governs weapon tests conducted at declared test sites. Although we had developed some text last year, the majority of our work on this protocol occurred in the 6-week Round IV which began on June 26 of this year. Work on the TTBT protocol is the sole focus of the present round that began on October 2 and remains in progress. Our work on this protocol has benefited greatly by agreements achieved during the Wyoming ministerial in late September.

We have now agreed on the major verification elements for the TTBT. We have agreed that direct on-side hydrodynamic methods may be used by the verifying side for all tests whose planned yield would exceed an agreed trigger level. For the United States this again means the CORRTX methods, which the Soviets would use an equivalent hydrodynamic technology they have independently developed. In order to minimize intrusiveness in verifying weapon tests, a coaxial cable is placed down a separate hole called the satellite hole, drilled nearby to the explosive emplacement hole.

Alternatively, for all tests whose planned yield exceeds that same agreed trigger level, the verifying party may make seismic measurements to estimate yield using its own seismic monitoring equipment at specific sites within the territory of the testing party to measure the strength of the seismic waves that propagate from the explosion through the Earth's surface. The United States agreed to these seismic provisions to address Soviet verification requirements.

A further provision provides the right for the verifying side to conduct onsite inspection procedures for all tests whose planned yield would exceed a separate

agreed trigger level. These procedures will permit direct examination of the emplacement conditions around the nuclear device, including the taking of rock samples and other data on the geology surrounding the explosive, but this onsite inspection does not include a direct-yield measurement.

We also have agreed on the inclusion of an additional right that is designed to improve the national technical means (NTM) that we must also rely on for verifying compliance. Each side will guarantee the other the right to make some hydrodynamic yield measurements each year, even if their test yields all fall below the trigger level. Correlation of onsite measurements of test yields with data derived through NTM for the same test should help minimize doubts over the size of any tests whose yield is not measures onsite.

Since returning the Geneva last month we have been developing protocol language to implement the agreements made in Wyoming. The progress has been good. Similarly, we are working hard to resolve all other remaining issues for the TTBT protocol. We have an excellent foundation for completing our work in time for the summit next year. However, I cannot predict with certainty how expeditiously we shall resolve the remaining problems or what new difficulties we may yet encounter. Since our practice is that "nothing is agreed until everything is agreed," predictions of the exact date when we shall complete the work are not possible. Let me, however, conclude this discussion by relating the instructions given to each delegation at Wyoming, namely "to continue intensive work to resolve all remaining issues so that these two documents can be submitted for ratification as quickly as possible."

It is my hope that the next time I sit down with this committee it will be to provide you with my supporting testimony urging ratification of the threshold treaties and their completed protocols. I look forward to that opportunity.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you very much, Ambassador Robinson.
Ms. Bailey.

STATEMENT OF KATHLEEN BAILEY, ASSISTANT DIRECTOR FOR NUCLEAR AND WEAPONS CONTROL, ARMS CONTROL AND DIS- ARMAMENT AGENCY

Ms. BAILEY. Mr. Chairman, I am pleased to have the opportunity to appear before the committee to address the subject of the U.S. response to the proposed amendment to the treaty banning nuclear weapons tests in the atmosphere and outer space and underwater, referred to hereafter as LTBT, and its relationship to the forthcoming review conference of the Treaty on Nonproliferation of Nuclear Weapons, hereafter referred to as NPT.

The CHAIRMAN. Could you hold the mike a little closer, please?
Ms. BAILEY. Sure.

I also would like to present my remarks in an abbreviated form. I have brought a statement with me.

The CHAIRMAN. The full statement will be inserted in the record without objection.

Ms. BAILEY. The U.S. views the Limited Test Ban Treaty and the Nonproliferation Treaty as very vital arms control treaties. They are integral to our national security goals and efforts. We do admit that there are some flaws with the overall regime. Specifically, the compliance question and universality question of each treaty is less than what we would ideally like. Specifically, the U.S.S.R. has violated the LTBT prohibition on venting radioactive debris in a manner that causes it to cross international borders.

Some say, however, that these treaties are more deeply flawed in that they do not call for a comprehensive test ban. Some nations would like to force the comprehensive test ban issue by transform-

ing the LTBT into a CTB via an amendment process. Let me explain the status of and our position on this amendment effort.

In August 1988, Mexico, Peru, Yugoslavia, Sri Lanka, and Indonesia, later joined by Venezuela, submitted letters to the depositaries of the LTBT which would call for an amendment to transform the LTBT into a CTB. They asked the depositaries to convene a conference to consider the proposed amendment. They were closely following article 2 of the LTBT, which provides that any party may propose an amendment and that, if requested by one-third or more of the parties, the depositaries must convene a conference to consider such amendment.

By March 1989, the requisite number of requests had been received, and the depositaries then in fulfillment of their obligations notified the parties to the LTBT that there would be an amendment conference called.

Simultaneously with this effort of the depositaries, the United States also made clear its objections to the amendment proposal on two counts, procedural and substantive. Substantively, the U.S. position on nuclear testing limitations is clear. Nuclear testing is indispensable to maintenance of the credible nuclear deterrent that has kept the peace for over 40 years.

The United States conducts nuclear tests only as required for our security. Testing is necessary to ensure the reliability of our nuclear deterrent and improves the safety, security, and survivability of our weapons. Consequently, a CTB must be viewed in the context of a time when we do not need to depend on nuclear deterrence to ensure international security and stability and when we have achieved broad, deep, and effectively verifiable arms reductions, substantially improved verification capabilities, expanded confidence building measures, and achieved greater balance in conventional forces.

Procedurally, the United States objects to the attempt to turn a valuable, viable treaty, the LTBT, into a CTB. The United States views the amendment process as potentially harmful to the LTBT, as well as to our ongoing efforts to improve the verification provisions for a bilateral testing agreement with the U.S.S.R.

As Ambassador Robinson has stated, we are working hard in Geneva to conclude the protocols that would provide for the effective verification of the TTBT and PNET.

These bilateral negotiations build upon the foundation provided by the LTBT. It remains inconceivable to me that the painstaking efforts being taken to address the complex verification issues of existing treaties would be aided by the participation of over 100 additional countries.

The present process is working. We should not derail it by entering into a "negotiation" for a CTB, in the context of the LTBT.

Now, article II provides that an amendment must be approved by a majority of the parties to the LTBT, including all three original parties, the U.K., the United States and the U.S.S.R. Thereafter, if a majority of the parties, including these three original parties, deposit instruments of ratification, the amendment enters into force.

The United States will exercise this treaty-given right to prevent amending the LTBT and turning it into a CTB.

The single-minded pursuit of a CTB is also harmful to the NPT as well. Knowing that the NPT is due to be extended in 1995, some CTB proponents seek to tie its extension to completion of a CTB. They wish to hold the NPT hostage to a CTB.

As with the LTBT, the administration believes that the NPT should remain intact and that it accomplishes much in terms of arms control, and that this progress should not be put at risk just because some countries want a CTB now.

This does not mean that the administration is inattentive to arms control, nor to the nuclear testing issue specifically. The U.S. position is that the arms control agenda is best served by focusing on reducing weapons and eliminating the threats which make those weapons necessary.

The arms control agenda is very full and is making good progress. We are working on verifiable cuts in strategic arms, reducing conventional forces in Europe, joint projects on a global chemical weapons ban, as well as confidence-building measures.

These efforts do contribute to security and arms control in a manner that a CTB cannot. A comprehensive test ban would not reduce armaments, it would not stop production of any weapon, it would not ensure any lessening of the arms race, nor would it enhance the ability to verify any arms control agreements. Quite the contrary, a CTB raises serious questions of verifiability and is likely to create instability.

Let me also add that a CTB is not likely to make a substantial contribution to nuclear nonproliferation. The reasons that lead a state to acquire nuclear weapons are fundamentally grounded in that state's perception of its own security interests, not in the behavior of the United States or the Soviet Union.

Despite our strong objection to the LTBT amendment proposal, the United States continues to fulfill its depositary role. We have consulted with the other depositaries and have agreed that a conference should take place in Geneva, opening on January 8, 1991, and lasting for a period of up to 2 weeks.

Within a few days, each depositary will be issuing diplomatic notes to the parties that deposited their instruments of ratification or accession with that depositary, to advise them of the convening of the conference.

The United States opposes holding more than one conference session or an extension of the conference itself beyond two weeks. We have agreements with the other Depositaries on a funding formula that would commit the United States to no more than 14 percent of the costs.

In particular, the United States will not participate in the completion of the draft amendment, nor will it fund negotiations or meetings specifically devoted to such.

If the amendment is brought to a vote at the conference, the United States will express its opposition by voting against it. In any case, no amendment can enter into force without ratification by all three original parties. Both the United States and the U.K. have indicated their intentions not to ratify.

In making our position clear on both the CTB issue and the conference itself, we hope that other parties will be dissuaded from

any further attempts to pursue their interests in a CTB by using the LTBT amendment procedures.

Thank you, Mr. Chairman.

[The prepared statement of Dr. Bailey follows:]

STATEMENT OF DR. BAILEY

Mr. Chairman: I am pleased to have the opportunity to appear before the committee to address the subject of the U.S. response to the proposed amendment to the treaty banning nuclear weapon tests in the atmosphere, in outer space and under water (the "Limited Test Ban Treaty," or LTBT) and its relationship to the forthcoming review conference of the treaty on the non-proliferation of nuclear weapons, (the "Non-Proliferation Treaty," or NPT).

The LTBT and NPT are cornerstones of the body of international law dealing with arms control and each is fundamentally related to U.S. national security. Since the signing of the LTBT in 1963, 111 states have joined the original signers, the U.S., U.K., and U.S.S.R., as parties to the treaty. Since the signing of the NPT in 1968, some 136 states have subscribed to it. Although there have been some problems—such as with compliance and universality—both treaties make a tremendous contribution to international security and stability.

The contribution of the LTBT should not be minimized. In the 1960's, the five nuclear states conducted atmospheric testing. None do so now. We admit that the treaty is not perfect, either in terms of universal adherence or compliance. For example, the U.S.S.R. has violated the LTBT prohibition on venting radioactive debris in a manner that causes it to cross international borders. However, the treaty has made an invaluable contribution by setting a standard for international behavior on testing.

Likewise, the Non-Proliferation Treaty has made an important contribution that should not be discounted. It provides an important barrier to the spread of nuclear weapons to a host of countries. In particular, many advanced countries which have the technological capability to produce such weapons themselves have undertaken the political commitment not to do so by signing the NPT.

Some nations have argued that the LTBT and NPT are flawed because they do not require a comprehensive test ban (CTB). Some seek to force a comprehensive ban by transforming the LTBT into a CTB via an amendment. Let me explain the status of and our position on this amendment effort.

In August 1988, Mexico, Peru, Yugoslavia, Sri Lanka, and Indonesia, later joined by Venezuela, submitted letters to the depositaries of the LTBT (U.S., U.K., and U.S.S.R.) proposing a draft of an amendment that would transform the LTBT into a CTB. They asked the depositaries to convene a conference to consider the proposed amendment. Their request followed the procedures set out in article II of the LTBT, which provides that any party may propose an amendment and that, if requested by one-third or more of the parties, the depositaries must convene a conference to consider such amendment.

By March 1989, the depository governments had received the requisite number of requests to necessitate convening an amendment conference. All three depositaries, in separate actions, informed the LTBT parties of this fact and indicated that they planned to consult among themselves with a view to preparing for convening the required conference.

Simultaneously, the U.S. made known its objections to the amendment proposal on two counts, substantive and procedural. It also made known the U.S. intention to prevent the amendment from being approved by exercising our rights under article II. Allow me to elaborate these points.

Substantively, the U.S. position on nuclear testing limitations is clear: nuclear testing is indispensable to maintenance of the credible nuclear deterrent that has kept the peace for over 40 years. The U.S. conducts nuclear tests only as required for our security. Testing is necessary to ensure the reliability of our nuclear deterrent, and improves the safety, security, and survivability of our weapons. Consequently, a CTB must be viewed in the context of a time when we do not need to depend on nuclear deterrence to endure international security and stability, and when we have achieved broad, deep, and effectively verifiable arms reductions, substantially improved verification capabilities, expanded confidence building measures, and achieved greater balance in conventional forces.

Procedurally, the U.S. objects to the attempt to turn a valuable, viable treaty, the LTBT, into a CTB. The U.S. views the amendment process as potentially harmful to the LTBT, as well as to our ongoing efforts to improve the verification provisions for

a bilateral testing agreement with the U.S.S.R. For example, as Ambassador Robinson has stated, we are working hard in Geneva to conclude the protocols that would provide for effective verification of for the TTBT and PNET. These bilateral negotiations build upon the foundation provided by the LTBT. It remains inconceivable to me that the painstaking efforts being taken to address the complex verification issues of existing treaties would be aided by the participation of over 100 additional countries. The present process is working. We should not derail it by entering a "negotiation" for a CTB in the context of the LTBT.

Article II provides that an amendment must be approved by a majority of the parties to the treaty, including all three "Original Parties" (the U.S., U.K., and U.S.S.R.). Thereafter, if a majority of the parties, including the three original parties, deposit instruments of ratification, the amendment enters into force. The U.S. will exercise this treaty-given right to prevent amending the LTBT to turn it into a CTB.

The single minded pursuit of the CTB is harmful to the NPT as well. Knowing that the NPT is due to be extended in 1995, some CTB proponents seek to tie its extension to the completion of a CTB. They wish to hold the NPT hostage to a CTB.

As with the LTBT, the administration believes that the NPT should remain intact, that it accomplishes much in terms of arms control, and that this progress should not be put at risk just because some countries want a CTB now. This does not mean that the administration is inattentive to either arms control or, more specifically, to the testing issue.

The U.S. position is that the arms control agenda is best served by focusing on reducing weapons and eliminating the threats which make those weapons necessary. The arms control agenda is very full and is making good progress:

- We are moving steadily toward deep, stabilizing, and effectively verifiable cuts in strategic arms;

- We are making progress toward an agreement reducing conventional forces in Europe to equal levels;

- We are entering into joint projects with our Soviet counterparts to improve confidence in our ability to verify the commitments we negotiate on a global chemical weapons ban; and,

- We are working to improve stability through the implementation of a wide variety of confidence building measures.

We believe that these efforts, these negotiations, are the best means of achieving, and I quote, "effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament." Those are the words of article VI of the NPT, words that are often cited as requiring negotiation of a comprehensive test ban. But clearly they do not, and, in my opinion, it is in our interest that they be properly understood.

A comprehensive test ban would not reduce armaments, stop production of any weapon, ensure any lessening of the arms race, nor enhance the ability to verify any arms control agreements. Quite the contrary, a CTB would raise serious questions of verifiability, and is likely to create instability.

A CTB is not an effective means of reducing arsenals; negotiations on reductions are, and that is what we are doing. Moreover, through nuclear testing, the U.S. has been able to reduce the size and explosive power of our nuclear stockpile over the past 20 years.

A CTB is not the most direct means of ensuring a cessation of an arms race, improved stability is, and that is what we are seeking through reductions in strategic and conventional forces, and implementation of confidence building measures. And a CTB is not a means of promoting "general disarmament under strict and effective international control," given our present day inability to ensure compliance with such a prohibition.

Finally, let me add that a CTB is not likely to make a substantial contribution to nuclear nonproliferation. Allow me to quote a 1986 article by Scrowcroft, Deutch, and Woolsey: "The argument is often advanced that a CTB will slow the spread of nuclear weapons to other nations. It is true that American and Soviet nuclear testing provides for non-nuclear states a convenient political rationalization for pursuing nuclear weapons development. But the reasons that lead a state to acquire nuclear weapons are fundamentally grounded in that state's perception of its own security interests, not in the behavior of the United States or the Soviet Union. South Africa today, for example, is unlikely to avoid nuclear weapons development because of a U.S.-Soviet CTB. Adherence by the superpowers to a CTB will change the rhetoric of some nations about nonproliferation but will have at best a marginal impact on the reality of what they do."

Despite our strong opposition to the LTBT amendment proposal, the United States continues to fulfill its depository role. We have consulted with the other depositaries and have agreed that the conference should take place in Geneva, opening on January 8, 1991, and lasting for a period of up to 2 weeks. Within a few days, each depository will be issuing diplomatic notes to the parties that deposited their instruments of ratification or accession with that depository to advise them of the convening of the conference.

The U.S. opposes holding more than one conference session, or an extension of the conference itself beyond 2 weeks. We have agreement with the other depositaries on a funding formula that would the U.S. to less than 14 percent of the costs. In particular, the U.S. will not participate in the completion of the draft amendment, nor will it fund negotiations or meetings devoted to such.

If the amendment is brought to a vote at the conference, the U.S. will express its opposition by voting against it. In any case, no amendment can enter into force without ratification by all three original parties to the treaty. Both the U.S. and the U.K. have indicated their intentions not to ratify. In making our position clear on both the CTB issue and the conference itself, we hope that other parties will be dissuaded from any further attempts to pursue their interests in a CTB by using the LTBT amendment procedures.

The CHAIRMAN. Thank you very much, indeed.

Ambassador Robinson, when do you actually expect the work to be completed, in your view, on the Threshold Test Ban Treaty?

Mr. ROBINSON. Senator Pell, I do not know an exact date. As you know in a treaty, in the end nothing is agreed until it is all agreed.

We have instructions from the Secretary of State, and similarly, the Soviet delegation from their foreign minister, to complete them as rapidly as possible. And both sides are working to complete them in time that they could be signed at a summit in late spring or early summer of next year.

The CHAIRMAN. Is it your thought that both protocols will be ready for signature prior to the real summit, not the meeting, but the summit?

Mr. ROBINSON. That is correct, sir. That is our goal. We have to send both protocols and treaties together for ratification, since neither one can go into force without the other.

The CHAIRMAN. And just to simplify it, what are the remaining issues in the TTBT, one, two, or three?

Mr. ROBINSON. Well, first of all, following the successful agreements at the Wyoming ministerial, we are preparing the language to implement the details of those agreements on the verification package I outlined for you, encompassing hydrodynamics, seismic measurements, and onsite inspections.

There are a number of small details to be worked out regarding procedures of bringing personnel of the other side into each country, such as ceilings on the personnel numbers. Again, I do not see major problems in those, but they remain unsolved at this time.

The last major issue to be undertaken is, now that we have handled provisions that cover the great majority of the nuclear testing practices of both the Soviet Union and the United States, we are looking at tests called nonstandard tests, exotic geometries, to assure that we can provide effective verification for those conditions as well.

That is the main topic of our negotiations between now and completion.

The CHAIRMAN. Then I would like to ask Dr. Bailey if we have discussed the amendment conference with the other two original parties, Great Britain and the Soviet Union?

Dr. BAILEY. You asked me what the original parties are?

The CHAIRMAN. No, the original parties are the United States, the U.K., and the U.S.S.R. Have we discussed the idea of the amendment conference with the other two original parties?

Dr. BAILEY. Yes. The original parties are also the same as the depositaries. They are just referred to in different context in the treaty as either original parties or depositary parties.

The CHAIRMAN. As I understood your testimony, the administration is not willing to consider an amendment to the Limited Test Ban Treaty to make it comprehensive. That is a correct statement; is it not?

Dr. BAILEY. We will not agree to amending the LTBT to turn it into a comprehensive test ban.

The CHAIRMAN. That is the administration's view?

Dr. BAILEY. Yes, that is the administration's view.

The CHAIRMAN. I would add, just speaking as one Senator, that my own hope is we do get a comprehensive test ban treaty. My reasons for that being that, if testing is needed to make sure weapons are in good shape and ready to use, and you cannot test for a period of years, it means that the weapons will no longer be reliable and, hence, less likely of use.

And, in addition to that, I think that you cannot develop new nuclear weapons without testing. And if testing is denied, you cannot have new nuclear weapons. So, for those perhaps overly simplistic reasons, I, as one individual, press for the idea of a comprehensive test ban treaty.

I would be interested if you could tell me where the fallacy is in my view, if there is a fallacy.

Mr. ROBINSON. First of all, Senator, I believe your view, and that of the administration, match in the end goals. We seek a peaceful world, a world with enhanced security.

Where we differ is that the route to achieve that, we believe, is until there is, some other solution that appears as effective, the reliance on the deterrent value of nuclear weapons. The testing issue is secondary to that. As long as we must depend upon nuclear weapons to preserve peace and international security, we have got to be able to test those weapons.

Now, if both sides were to lose confidence in their nuclear weapons, which would arise if there were no nuclear tests, I think it would lead to an instability, rather than a stability. Neither side would know at what rate the other side's weapons were becoming less confident.

In such an atmosphere, risktaking might come into view. I think, therefore, from a philosophical basis, it is difficult to imagine that taking two instabilities, two uncertain conditions, could ever lead to the stable and peaceful world that we seek.

The CHAIRMAN. I appreciate your thoughts. And as you point out, our eventual objective is the same, but we differ a little bit, or rather substantially, I guess, on this question of a comprehensive test ban treaty, which I have supported for many years.

But I thank both of you very much, indeed, for being with us.

And now, unless you have anything more you care to say, I would excuse you, and we will go on to our other witnesses.

Dr. Robinson, I wanted to particularly congratulate you on the work you have done, your clear thinking, and the direction you have given to moving along on these treaties. And I would just hope, as I said in my opening statement, that we really can wrap them up.

Thirteen years, or whatever it is, I am sure we both agree, is too long.

Mr. ROBINSON. I return to Geneva tonight to get back to work. Thank you, sir.

The CHAIRMAN. Good luck.

Thank you.

Could Admiral Carroll, Dr. Pastore, and Mr. Tovish come forward.

I would like to acknowledge the presence of some visiting Russian high school students who are visiting here under the USIA exchange program. They are on their way to Albuquerque, NM, and I guess they must be the students in the back of the room. So, we welcome you. I do not know quite how to say it in Russian, but in English, welcome.

A VOICE FROM THE AUDIENCE. Thank you, Senator. They are from Moscow. They are on the exchange program, 50 high schools from America, exchange students from 50 high schools in the Soviet Union, and this is about the eighth school we have had come to America this year. This is the second year of the program, and they are going to attend school at La Cueva High School in Albuquerque.

The CHAIRMAN. Thank you very much indeed. [Applause.]

If we could start out with, I guess, Admiral Carroll, Deputy Director for the Center for Defense Information. He will lead off.

I would add, any full statements you have will be inserted in the record as if read.

**STATEMENT OF REAR ADM. EUGENE J. CARROLL, JR., USN (RET.),
DEPUTY DIRECTOR, CENTER FOR DEFENSE INFORMATION,
WASHINGTON, DC**

Admiral CARROLL. Thank you very much. I will submit my formal statement for the record and then for the sake of brevity emphasize several points.

First, let me say it was a privilege to hear the testimony of the administration witnesses. I have been involved in nuclear weapons directly since 1955 at all levels of nuclear training, operations, planning, and strategy considerations, and I would have to say that I disagree categorically with the logic which they offered to support their recommendations that nuclear weapons testing must continue in the interest of national security and deterrence.

It is uninformed sophistry to put it kindly.

The CHAIRMAN. In other words, you would agree with the view I advanced?

Admiral CARROLL. Very much so. It is a matter of grave concern that there has been no progress toward a comprehensive test ban for the last 10 years and, in fact, we have moved away from it. We are further from agreement because of the ability of the administration to create the impression they are negotiating when, in fact,

all they are doing is delaying progress toward a comprehensive test ban with the present threshold test ban and peaceful nuclear explosions ban discussions.

The question of verification of these treaties is just a red herring. It's a means of delaying progress, and I'm not just quoting the Center for Defense Information whose views are well known.

Let me quote a former administration official, Mr. Frank Gaffney, former Assistant Secretary of Defense. He says the inherent limitations of CORRTEx, the system we say is necessary to verify the current treaties, are regarded as virtues by those in the U.S. Government who hope to slow the rush toward additional constraints or a complete ban on nuclear testing.

The thinking goes like this. The more time wasted on discussions and experimentation on monitoring techniques that is irrelevant to the verification of a test ban, the easier it will be to stave off demands for the more constraining comprehensive test ban.

Mr. Gaffney is a man on the inside who participated in the development of our negotiating strategy who is a longstanding opponent of a comprehensive test ban. He says that this is the purpose of the current proceedings in Geneva today.

Let me say that our former comprehensive test ban negotiator, Dr. Herbert York, first Director of the Livermore National Laboratories, calls this the salami technique of progress toward a comprehensive test ban. You slice it as thinly and as painfully and in as time-consuming a way as possible to delay arrival at a comprehensive test ban.

This is nothing new, by the way, in the history of arms control. It is a continuation of 30 years of what I would call the talk/test/build process of arms control.

We talk and talk and talk about limiting or reducing nuclear weapons, but all the while we go on testing and building new and more destructive weapons. We unfortunately talk a long time and agree very slowly, but we test and build very rapidly.

In the decade of the 1970's, we entered into 11 agreements with the Soviet Union which were intended in one way or another to limit nuclear arms competition. In that same 10-year period, both sides tripled the number of weapons they aimed at each other in their strategic arsenals. This was as a result of testing, which made it possible to put multiple warheads on nuclear missiles.

Did we come out of the talk/test/build process safer? Not at all. We came out in a way where each side threatened the security and survivability of the other side with greatly increased number of weapons.

The administration's arguments presented here again today for not stopping testing are simply incorrect. They stand logic on their head. We don't test nuclear weapons explosively for reliability. Dr. Herbert York, the director of Lawrence Livermore Laboratory, said we test less often than once a year for reliability purposes.

If you have more than 23,000 weapons in a stockpile and you only test 1 or fewer, you don't learn anything about reliability. Reliability is established and maintained through visual inspection, through physical replacement of components. This has been a very successful program attested to by other scientists at the laboratory.

You do not explode nuclear weapons at all for safety reasons. Safety for nuclear weapons resides in the chemical explosives and the firing circuitry, and you certainly do not need or cannot even tolerate nuclear components present if you are going to get useful safety information.

The reason we continue testing, purely and simply, is to develop new weapons. Yes, that is the reason. They argue this increases deterrence, maintains deterrence, without ever pointing out that if we test, the Soviets test and the race goes on. New weapons are developed and deployed and we end up less safe with less confidence in deterrence.

No one can doubt, for example, that it was a mistake to put multiple warheads on missiles. That action led to the complaint about what is called the window of vulnerability. Had we had a test regime, a complete ban on nuclear testing, that would have never happened. We would all be safer without these new weapons which we now say we must continue testing for deterrence.

The benefits of going to a complete nuclear test ban at this time I think are very important and straightforward. In the first place, it would be a clear signal of our intentions, an action to convince not only our adversaries, but the world, that we really want to bring an end to nuclear competition.

It is very hard to convince people that we mean what we say in Geneva when in the United States we are spending world record peacetime budgets on preparing for nuclear war. Hundreds of billions of dollars and testing is an integral part of that program.

Public opinion, not only in the United States but around the world is against us on this. There is growing pressure from the world community to move forward on an end to the nuclear competition. The limited test ban amendment conference is but one example of that.

I believe also there is great wisdom and understanding in Congress where 135 Members of the Congress, including the distinguished chairman, have asked the administration to move forward on an accelerated basis for a comprehensive test ban so that we would put ourselves in the leadership of a movement instead of opposing it.

We would end up with no new weapons such as the earth penetrators which we are trying to develop, or space warfare weapons which we are trying to develop. Will we be safer if both the United States and the Soviet Union continue testing and end up with these new dimensions to nuclear warfare?

Finally, I think a comprehensive test ban puts an end to the test of talk/test/build. A test ban would end this terrible process by which, while you talk, you go on increasing the risks and dangers of nuclear war. It would stabilize the issues for negotiations, make it possible for each side without fear to enter into balanced mutual, verifiable arrangements to reduce nuclear weapons on both sides. You would not at the same time have the fear of new weapons pouring out of the test tunnels.

In short, a nuclear test ban is the first essential step to end the arms race. Far from destabilizing it and making us less safe, a nuclear test ban is the first step toward safety. As long as testing goes

on, new destructive technology and weapons will emerge and will make both sides less safe.

If we continue preparing for a nuclear war through testing and building new weapons, sooner or later the deterrent system will fail. The time to start and to move to a comprehensive test ban is now.

[The prepared statement of Admiral Carroll and addenda follow:]

PREPARED STATEMENT OF ADMIRAL CARROLL**PART I: RECENT U.S. EFFORTS TO
PRECLUDE A NUCLEAR TEST BAN**

First the Reagan Administration and now the Bush Administration have stated that, before the United States and the Soviet Union can begin negotiations on a nuclear test ban, the two sides must first agree upon new verification measures so that two existing treaties – the Threshold Test Ban Treaty (TTBT) and the Peaceful Nuclear Explosions Treaty (PNET) – can be ratified. In this context, the United States has made a commitment, following the ratification of these two treaties, to "proceed to negotiating further intermediate limitations on nuclear testing leading to the ultimate objective of the complete cessation of nuclear testing." Dr. Herbert York, the first director of Lawrence Livermore National Laboratory, terms this the "salami approach" to a test ban. The record which follows makes it clear that the intention is to drag out this process indefinitely as the salami is sliced very thinly in many time-consuming steps.

The last serious negotiations on a Comprehensive Test Ban (CTB) were held in 1980 under the Carter Administration. In 1982, then-President Reagan decided that the United States should formally suspend negotiations to limit nuclear testing. In the subsequent five years there were no negotiations.

For the last two years the United States and the Soviet Union have been devoting negotiations on limiting nuclear testing primarily to the purpose of writing a verification protocol for the TTBT. It is likely that this protocol will be finished sometime in the next few months and submitted to the Senate for its advice and consent – a process that might take another 6 months. Subsequently, it is likely that President Bush and President Gorbachev will exchange the instruments of ratification for the TTBT and PNET at the summit meeting in May or June of next year and the Administration will declare this accomplishment as a major arms control victory. In reality, it will mean that, in a combined effort, the Reagan and Bush Administrations will have succeeded in avoiding any significant progress towards a CTB for about the last ten years.

The time, money, and effort wasted on the TTBT protocol over the last two years is an example of the "salami approach" at its worst. Furthermore, the Bush Administration's role in continuing to delay progress toward a test ban, casts great doubt about the Administration's seriousness in pursuing its stated long-term goal of a CTB.

In criticizing the Reagan and Bush Administrations' two-year effort to rewrite the verification protocol for the TTBT, four points are significant. First, the 15-year old TTBT is a treaty of only marginal value. It has not prevented the development of new nuclear warheads and bombs. Second, there is no solid evidence that the Soviet Union has violated the TTBT. In fact, the directors of

the nation's two national nuclear weapons laboratories told this Committee exactly that in January 1987. Last year, the Office of Technology Assessment (OTA) issued an authoritative report which concluded, after extensive statistical studies, that "the Soviets are observing a yield limit consistent with" the TTBT. Third, seismic technology has progressed to the point where most U.S. scientists concur that seismic means can be used to verify Soviet compliance with high confidence. Fourth, the CORRTEX verification system, selected by the Reagan and Bush Administrations, is poorly suited for monitoring compliance with a low threshold test ban and totally useless for monitoring a CTB.

When taken together, these four points substantiate that the Reagan and Bush Administrations have been engaged in a calculated stalling tactic to prevent or at least delay the achievement of stricter limits on nuclear testing. In fact, former Reagan Administration officials have acknowledged as much. For example, in September 1988, Frank Gaffney, a deputy assistant secretary in the Defense Department during the Reagan Administration, wrote the following about CORRTEX and its role in the Reagan Administration's arms control policy:

"CORRTEX works best in monitoring tests with higher yield levels. Consequently, it would not be particularly useful for verifying compliance with a new set of limitations aimed at lowering the allowed threshold for such tests.

The inherent limitations of CORRTEX are regarded as virtues by those in the U.S. government who hope to slow the rush toward additional constraints on—or the complete banning of—nuclear testing. The thinking goes like this: The more time wasted on discussions and experimentation of monitoring techniques irrelevant to the verification of an environment in which there are no legal tests, the easier it will be to stave off demands for the more constraining comprehensive test ban."

There is additional evidence to reinforce the conclusion that the Bush Administration is trying to stall progress by insisting on the use of CORRTEX. The Administration has refused to release to the Congress the data from the Joint Verification Experiment (JVE) held in August and September of last year. This is indeed curious given the fact that the Soviet Union already has the data. The only logical conclusion one can draw is that the data do not support the Administration's assertion that CORRTEX is significantly more accurate than seismic means in estimating the yields of Soviet nuclear explosions. Therefore, the Administration's argument that the United States and the Soviet Union currently can't proceed beyond TTBT limits because existing seismic means are inadequate seems to be both dubious and duplicitous.

Based on this track record, you can only expect that subsequent to the ratification of the TTBT and PNET, the Bush Administration will offer so-called "intermediate steps" to limit nuclear testing that are actually designed to stall

progress toward a CTB. Such a piecemeal "salami approach" to limiting nuclear testing could succeed in delaying the achievement of a CTB for decades.

It seems likely that there will be some serious problems with the "slice by slice" measures that the Bush Administration will need to address in the near future, causing severe complications on several fronts. First, if the Administration is consistent, it will continue to argue that CORRTEx is needed to verify an agreement with a lower threshold than 150 kilotons. This will merely incite constant haggling about estimates of yields of each other's tests. The same destructive violation charges the United States has made about the 150 KT limit will simply recur at lower levels.

Further, CORRTEx is not effective for measuring tests under 50 kilotons. To lower the threshold to 50 kilotons or lower, the Administration would have to admit that seismic monitoring stations are sufficiently accurate in their yield estimates. This would require the Administration to contradict its current position.

In addition, there is a cost-effectiveness issue that needs to be addressed. In 1988, DOE estimated that the cost per CORRTExed event will be approximately \$10 million. For about the same cost, DOE could install five high quality seismic monitoring stations. A second example of the great difference in costs can be found in a project currently being carried out by a consortium of American universities called Incorporated Research Institutions for Seismology (IRIS). IRIS has been able to buy and install high quality seismic stations in the Soviet Union at a cost of about \$250,000 per unit. The operation cost for the IRIS network, depending on its size, is estimated at roughly \$2-\$4 million per year. Therefore, for the price of one CORRTEx test, IRIS could install and maintain a network of some 25-30 seismic monitoring stations in the Soviet Union for a year. This difference in cost is especially significant given the fact that seismic stations are capable of performing several missions that go well beyond CORRTEx's capabilities: 1) once installed, they can be used over a long period of time to monitor numerous nuclear explosions (not just one); 2) they can monitor low yield explosions with considerable accuracy; 3) they can detect clandestine tests. In sum, seismic monitoring stations are cheaper, more flexible, and less intrusive.

The Committee needs to be wary of making politically expedient compromises on limiting nuclear testing. President Kennedy's decision to compromise on a CTB in 1963 by agreeing to allow continued underground testing is an example of the price that might have to be paid for making large concessions to those who oppose limits on nuclear testing. Although the Limited Test Ban Treaty (LTBT) has been successful from an environmental perspective, its implementation has done little to curb the nuclear arms race. In fact, the implementation of the LTBT was followed by a substantial increase in the rate of nuclear testing by both sides.

It is important to distinguish between a step by step approach designed to postpone indefinitely the conclusion of a CTB and a step by step approach that is designed to facilitate and expedite the conclusion of a CTB. In May 1989, 165 members of Congress signed a letter urging the Bush Administration to seek a "mutual, verified phaseout of nuclear weapons tests leading to (the) conclusion of a comprehensive test-ban treaty...in 1995." Clearly, this letter was requesting the Bush Administration to take the latter approach.

Last year many of the top U.S. experts on nuclear test ban policy met at the Belmont Conference Center in Maryland. The Conference recommended an approach that would seek to achieve a CTB by 1995. This approach would include the following three phases:

- * Phase One (1989 and 1990): Halt tests above 10 kilotons, except for 6-9 higher yield tests to assure confidence in the reliability of existing warhead designs.
- * Phase Two (1991-1994): Halt all tests above 2 kilotons.
- * Phase Three (1995 and beyond): Conduct negotiations toward ending all nuclear tests.

Based on its past policy statements, it seems highly unlikely that the Bush Administration will be willing to make a firm commitment to an approach that includes a precisely defined deadline for a CTB, such as the one outlined in the Belmont Conference approach. If this is the case and the Administration refuses to make a commitment to seek a CTB in the near term, we will be missing an historic opportunity to curb the dangerous and costly nuclear arms race.

It is significant that U.S. efforts to preclude an end to nuclear testing is contrary to the spirit of the world community. Not only was there widespread support and approval for Mr. Gorbachev's voluntary test moratorium of 1985-87, there have been numerous expressions of international interest in bringing about a comprehensive test ban. These actions include:

- * In 1986, Argentina, Greece, India, Mexico, Sweden, and Tanzania urged a suspension of all nuclear testing and offered to make their territory available for the establishment of an international seismic network to monitor compliance with a test ban.
- * In December 1988, the United Nations General Assembly passed a resolution calling for the cessation of nuclear testing by the overwhelming majority of 136 to 4.

* More than 40 signatories of the LTBT have requested that the United States, United Kingdom, and Soviet Union convene a conference to consider amending the treaty so that it prohibits all nuclear explosions including underground nuclear explosions.

PART II: THE CASE FOR A NUCLEAR TEST BAN TODAY

The history of efforts to limit or reduce nuclear weapons has been distinguished by a pattern of talking about measures to control the arms competition while simultaneously intensifying the competition through active nuclear testing and weapon production programs. This pattern is accurately described as the "talk-test-build" process. The consequences of this process were most evident during the 1970s when the United States and the Soviet Union concluded 11 agreements presumably intended to lessen the risk of nuclear war. In the same decade both nations approximately tripled the number of weapons aimed at each other in their strategic nuclear stockpiles. Talking went on slowly and painfully for 10 years, but testing and building surged ahead much faster.

The "talk-test-build" process results from factors which have driven the arms competition for 40 years. In the unending drive for assured deterrence, each side uses the other side's latest nuclear development to justify yet another round of weapons buildup. Pursuit of deterrence is the engine of the arms race, and the fuel to drive it is new technology advancing through nuclear testing. Thus, while the negotiators haggle interminably over details, new weapons come into the inventory. These new products are never offered up in the negotiations. In fact, they are carefully protected in treaty drafts for shortsighted reasons even though a longer-term view might well reveal the ephemeral nature of technological advantages. Everyone can agree with Henry Kissinger's retrospective wisdom when he said: "I wish I had thought through the implications of a MIRVed world more thoughtfully in 1969 and 1970 than I did."

Although efforts to restrain the arms buildup have produced certain benefits and the world is clearly better off with the existing agreements than without them, it is also true that "talk-test-build" negotiations have not prevented dangerous qualitative advances in nuclear weapon systems. Continued testing creates a 'moving target' for negotiators and virtually guarantees that the technological imperative will increase the destructive capacity of nuclear weapon arsenals faster than arms control measures can restrain them.

It is this clear understanding that "talk-test-build" negotiations cannot keep up with technological advances that compels us to examine the potential effects of stopping testing as a first step to restrain the arms competition. If what is being done is not working, simple logic requires that alternatives be

evaluated with close attention to the prospective psychological and political effects of taking a first, positive step in a new direction.

The foremost, immediate benefit of a nuclear test ban would be its significance as an unambiguous signal of intentions. The Soviet Union gave that unambiguous signal in its 1985-87 nuclear testing moratorium. With a similar commitment, the United States could make the same strong statement that there has been a fundamental change in policy and that progress is once again possible.

There is no way to make such a commitment in words — only actions can break down the strong and growing doubts each side has about the other's intentions and motives. Words are always suspect but constructive actions speak for themselves, establishing credibility and stimulating genuine progress.

The Fear Factor

A major benefit of a successful nuclear test ban treaty will be a reduction in fear of the unknown. Fears on both sides concerning the intentions and objectives of the other side have always been impediments to effective arms control. But if each side agrees to restrict the push for technological advantage in nuclear weapons, one major source of fear will disappear. The current arsenals are, and will remain, frightening in the extreme, but each side understands that they cannot now be used for rational military purposes. It is acute fear of the unknown (what the other side might be creating through underground testing where precise determination of purpose or progress is impossible) that has driven much of the arms race for 20 years. Knowing that nothing new will suddenly emerge operationally will make it much easier to deal sensibly with existing problems.

In fact, reduced fears will make it possible to question the fundamental need for the excessive levels of military forces which exist today. If neither side fears that the other might soon 'break out' with some exotic new nuclear system, both will be free to take hard, critical looks at the risks and costs of maintaining the grotesque nuclear arsenals which already exist. No one argues that 50,000 nuclear weapons can be used to defend anything — they can be used only to destroy the adversary while simultaneously destroying oneself. These arsenals are being maintained and expanded today only in the belief that they might somehow be useful to address some new form of nuclear threat in the future. Halting nuclear testing and reducing fear of the unknown could eliminate that perception and make sensible political decisions much more probable in the future.

Verification

Looking back, it is obvious that the sides have from time to time differed on procedures to verify a test ban and have used those differences as a barrier to agreement. Some progress was made on this issue in the late 1970s before the trilateral UK-USA-USSR comprehensive test ban (CTB) negotiations were terminated, but a careful reading of the Tripartite Report to the United Nations of 31 July 1980 suggests that even then verification was still a sticking point.

But times have changed. The INF Treaty was notable for the incorporation of new, highly intrusive on-site inspection procedures to assure compliance. In fact, the Soviets were more forthcoming in their proposals on inspection measures and it was U.S. representatives who refused to open up territory and facilities as much as the Soviets had volunteered to do. With respect to test verification, the Soviets have already permitted privately funded American scientists to set up modern seismic monitoring equipment near its nuclear test site at Semipalatinsk as well as cooperating with official U.S. teams on test calibration experiments in the Soviet Union and in the United States.

Finally, there have been major advances in seismic monitoring capabilities worldwide since 1980. A new high frequency seismic array in Norway has provided far greater capability to detect and classify distant nuclear blasts than had been predicted. Scientists at Cal Tech have demonstrated the capability to detect nuclear explosions down to one-tenth of a kiloton at the Nevada test site with a seismic network that was not even designed for that purpose. Furthermore, on-site inspections and seismic monitoring stations can be supplemented with additional National Technical Means (NTM) such as reconnaissance satellites. Taken together, it is clear that, given the will to reach agreement, verification measures to protect against any significant cheating can be established.

Reliability and Safety

Two arguments most frequently advanced by the Reagan/Bush administrations are that the United States must continue to test to insure the reliability and safety of the existing weapon stockpile.

With respect to reliability, there is a growing body of scientific testimony that explosive testing is not required to insure the reliability of stockpile weapons which have already undergone rigorous design and production testing. In fact, there is reason to doubt that reliability is anymore than an expedient rationalization to justify continued nuclear testing. In "Countdown on the Comprehensive Test Ban" Dr. Herbert York states that reliability testing is conducted "less than once a year." Testing of a stockpile with more than 23,000 weapons at the rate of less than once a year produces no significant data or information concerning reliability.

Safety testing, per se, is never done with nuclear components installed. The safety of nuclear weapons is related to the chemical high explosive content and the firing circuits, neither of which require nuclear explosive testing.

New Weapon Development

The only valid reason to continue testing is to test the design and performance of new nuclear weapons. Of course, when we are free to test new weapons, so are the Soviets. Thus the arms race goes on.

At this moment, an end to all nuclear testing would prevent both sides from creating whole new families of nuclear weapons, including earth penetrating warheads and exotic, new nuclear-driven directed energy weapons (NDEWs) for use in space warfare. It is impossible not to conclude that the United States and the Soviet Union would both be safer, and save huge sums of money, by agreeing to forego the tests needed for all new nuclear weapons.

In summary, continued nuclear testing guarantees a continued arms race, replete with rising costs and increasing dangers of a nuclear war, which no one can win—perhaps no one can survive. The first essential step away from nuclear war is a complete cessation of all nuclear tests. Only by ending tests can we put an end to "talk-test-build" arms control; and, for the first time in the nuclear age reach arms control agreements which will prevent the creation of new generations of nuclear weapons to replace the ones we agree to eliminate.

The CHAIRMAN. Thank you very much indeed, Admiral Carroll. Dr. Pastore, it is particularly a personal pleasure to greet a friend and the son of an old friend and colleague. Your name is very familiar in these halls. Dr. Pastore.

STATEMENT OF DR. JOHN O. PASTORE, SECRETARY, INTERNATIONAL PHYSICIANS FOR THE PREVENTION OF NUCLEAR WAR

Dr. PASTORE. Thank you very much, Mr. Chairman. As you know, I am a cardiologist in Boston but I am here today, representing as secretary, the International Physicians for the Prevention of Nuclear War, which now represents more than 200,000 physicians in 69 countries all over the world.

In 1963, my father, John O. Pastore, was a Member of the U.S. Senate. One of his proudest moments in the Senate occurred when he stood beside President John F. Kennedy 26 years ago as the President signed the Limited Test Ban Treaty.

That treaty banned the testing of nuclear weapons in the atmosphere, under water and in outer space—

The CHAIRMAN. To interrupt, I remember that occasion—I was a member of the Senate at the time—and how proud your father was of it. It was a wonderful festive day and I remember also President Kennedy was very proud of that occasion.

Dr. PASTORE. As the Senator knows, and I am proud to say, he was one of those on the floor leading the ratification effort at that time.

The LTBT, as the treaty came to be known, was full of promise. It was much hoped that a comprehensive test ban treaty would soon follow. However, in 1963 a disagreement over the number of onsite inspections required to verify a complete test ban prevented such an agreement.

Regrettably, over the ensuing 26 years, the promise of a limited test ban treaty has not been fulfilled. A treaty that promised to slow the nuclear arms race only drove it underground. Today, with a nuclear test somewhere in the world every 8 days, the qualitative nuclear arms race continues unabated.

Even more regrettably, recent administrations in our own country have stood in the way of a comprehensive test ban. The Reagan and Bush administrations have been unyielding on this issue because, we think, of a misguided faith in nuclear deterrence and an illogical approach to what it takes to deter in the first place.

Our support for a CTB is based on several factors. No. 1, a test ban is verifiable. Arguments to the contrary ignore the overwhelming weight of scientific evidence and serve only to confuse the public.

No. 2, there is no valid reason to continue testing. In endless communications that we have had with the administration and the State Department, they have reported what we heard today, and that is that nuclear testing is essential in order to ensure that our deterrent is "safe and reliable."

This argument against the CTB is spurious, since the purpose of ongoing nuclear testing is to develop new nuclear weapons systems as Admiral Carroll just said, and not to determine the safety and reliability of existing stockpiles, and that is exactly why we favor a

CTB that would bind all sides, thus ending the relentless pursuit of the unachievable—nuclear superiority.

No. 3, a test ban is readily achievable, and No. 4, a CTB would help stem the tide of nuclear proliferation. A test ban is within our grasp. It is tantalizingly close. In the present, improved international climate it is a disservice to our citizens and the world to just say "No."

Administration officials willing to address the issue candidly have admitted that the real reason for their refusal to stop testing was the alleged need to develop SDI and other advanced weapons.

In our view, this is precisely why a test ban is so vital. What is the point of dismantling INF weapons and hopefully START weapons on the one hand, if they are simply going to be replaced by the more destabilizing weapons now being tested? It makes no more sense than a doctor injecting a vaccine in one arm and a lethal virus in the other.

We support the amendment initiative that would convert the LTBT into a CTB, and Mr. Tovish will discuss that question further.

Glenn Seaborg was, as you know, the head of the U.S. Atomic Energy Commission under President Kennedy. He played a vital role in negotiating the LTBT, but he was also one of those advisors who urged the President not to agree to a CTB because of the disagreement over the number of onsite inspections.

In a recent issue of the Bulletin of Atomic Scientists, Glenn Seaborg lamented that advice, calling the failure to achieve a CTB "one of the greatest disappointments in my life."

"A comprehensive test ban," wrote Seaborg, "would forestall dangerously destabilizing developments." He went on to say that support for a CTB is the litmus test that separates those genuinely committed to reducing the nuclear threat from those who are not.

It is bad enough that we continue to tempt fate by failing to put the brakes on the arms race, but as you know, we are already paying a staggering price by merely producing nuclear weapons.

The legacy of a nuclear weapons production has been an environmental and health disaster of enormous but still unmeasured proportions. The cleanup, if indeed there can be an effective cleanup, will cost hundreds of billions of dollars.

Can we afford the cleanup? Can we afford to spur on the arms race, with its enormous cost, by continuing to test and develop nuclear weapons?

Our organization, the physicians', among others, has highlighted the social and economic cost of the nuclear arms race. A small but significant part of that cost is directly traceable to nuclear weapons test explosions themselves.

The Department of Energy currently spends an average of \$50 million on each underground nuclear test explosion 15 times a year. At the same time, millions of Americans are without basic access to health care and infant mortality in the United States remains shockingly high compared to other industrialized countries.

Each month AIDS claims more than 3,000 new victims in the United States alone, and still there is no cure. Following the recent earthquake disaster in northern California, ABC News reported that 44 percent of our Nation's bridges are badly in need of repair,

and this also represents an enormous public health threat to our citizens.

It is now clear, as well, that the overwhelming majority of Americans believes that the scourge of drug dependency, and not any foreign military force, is the key peril that we face. Solving our public health problems would enhance national security. Indeed, we will not be secure as Americans until they are solved.

Nuclear weapons and their development through testing weaken our ability to solve these problems. That is why 80 percent of all American support a comprehensive test ban treaty.

Mr. Chairman, just a few weeks ago I returned from a trip to Hiroshima and Nagasaki. It was something of a homecoming for me, because from 1969-71, I served the U.S. Government in Hiroshima as a member of the Atomic Bomb Casualty Commission. In Hiroshima and Nagasaki, the narrow world of the nuclear weapons designers and strategists seems out of touch with reality.

Standing in those cities, one realizes the absurdity of deterrence's practice today, a sham which has led to the development of a world arsenal capable of perpetrating more than 1 million Hiroshimas, with the equivalent of 4 tons of TNT for every person on Earth.

A test ban would break the vicious cycle that holds all human beings hostage. It would help retard nuclear proliferation and the new generations of nuclear weapons that will threaten our children and grandchildren.

Finally, Mr. Chairman, Adm. Hyman Rickover, the father of the U.S. Nuclear Navy, and a man who appeared often before the Joint Congressional Committee on Atomic Energy when my father was its chairman, appeared before the Joint Economic Committee of the U.S. Congress on January 28, 1982.

In response to a question from Senator Proxmire, Admiral Rickover stated "I think from a long-range standpoint—I'm talking about humanity—the most important thing we could do is start in having an international meeting where we first outlaw nuclear weapons." Admiral Rickover.

The voices of Seaborg, Rickover, and George Kennan—will we listen to the wisdom of their later years? Will we avoid the mistakes of the past or be doomed to repeat them? Change for the better suffuses the international climate, Mr. Chairman, and the time is now.

As a physician, as a father, and a citizen, I urge the committee's strong support for a comprehensive test ban treaty, and on behalf of the International Physicians for the Prevention of Nuclear War and Physicians for Social Responsibility, I thank you very much for hearing us.

[The prepared statement of Dr. Pastore follows:]

STATEMENT OF DR. PASTORE

Mr. Chairman, Members of the Committee on Foreign Relations: My name is Dr. John O. Pastore. I am a practicing cardiologist at St. Elizabeth's Hospital of Boston and an Associate Professor of Medicine at Tufts University School of Medicine. I am here today representing the International Physicians for the Prevention of Nuclear War (IPPNW), of which I am secretary, and IPPNW's United States affiliate, Physicians for Social Responsibility. IPPNW, as you may know, was the recipient of the

1985 Nobel Peace Prize. We now represent more than 200,000 physicians in 69 countries all over the world.

In 1963, my father, John O. Pastore, was a member of the U.S. Senate. One of his proudest moments in the Senate occurred when he stood President John F. Kennedy 26 years ago as the President signed the Limited Test Ban Treaty. That treaty banned the testing of nuclear weapons in the atmosphere, under water and in outer space, and I say with pride that my father was among those leading the ratification effort for that treaty in the U.S. Senate.

The LTBT, as the treaty came to be known, was full of promise. There was much hope that a comprehensive test ban treaty would soon follow. However in 1963, a disagreement over the number of onsite inspections required to verify a complete test ban prevented such an agreement.

Regrettably, over the ensuing 26 years, the promise of a limited test ban treaty has not been fulfilled. A treaty that promised to slow the nuclear arms race only drove it underground. Today, with a nuclear test somewhere in the world every 8 days the qualitative nuclear arms race continues unabated.

Even more regrettably, recent administrations in our own country have stood in the way of a comprehensive test ban. The Reagan and Bush administrations have been unyielding on this issue because of a misguided faith in nuclear deterrence, and an illogical approach to what it takes to deter in the first place.

Since 1985, IPPNW has believed that a comprehensive nuclear test ban would be the single most important step in reversing and eventually stopping, the insane spiral of the arms race that has no end.

Our support for the CTB is based on several factors. First, a test ban is verifiable. Arguments to the contrary ignore the overwhelming weight of scientific evidence and serve only to confuse the public.

Second, there is no valid reason to continue testing. In a letter to IPPNW dated May 9, 1989, Kent Brown, Director of the State Department's Office of Strategic Nuclear Policy, stated that "as long as U.S. national security rests fundamentally upon our nuclear deterrent, nuclear testing would be essential in order to ensure that our deterrent is safe and reliable." This argument against the CTB is spurious, since the purpose of ongoing nuclear testing is to develop new nuclear weapon systems and not to determine the safety and reliability of existing stockpiles. And that is exactly why we favor a CTB that would bind all sides, thus ending the relentless pursuit of the unachievable—nuclear superiority.

Third, a test ban is readily achievable and fourth, a CTB would help stem the tide of nuclear proliferation.

Let me elaborate on the last two points. From August 1985 until February 1987, the Soviet Union engaged in a unilateral nuclear testing moratorium which the Reagan administration refused to join. The Soviet offer of a reciprocal and mutual test moratorium is still on the table and has often been repeated by General Secretary Gorbachev and Soviet Foreign Minister Eduard Shevardnadze. IPPNW played a significant role in persuading Gorbachev personally to extend the Soviet unilateral moratorium not once, but three times. A test ban is within our grasp. It is tantalizingly close. In the present improved international climate it is a disservice to our citizens and to the world to just say no.

The few administration officials willing to address the issue candidly have admitted that the real reason for their refusal to stop testing was the "need" to develop SDI and other advanced weapons. In our view, this is precisely why a test ban is so vital. What is the point of dismantling INF weapons on the one hand, if they are simply going to be replaced by the more destabilizing weapons now being tested? It makes no more sense that a doctor injecting a vaccine in one arm, and a lethal virus in the others.

With respect to proliferation, it is important to recognize that in the Nuclear Non-Proliferation Treaty of 1968, the superpowers committed themselves to prompt progress on a general regime of nuclear disarmament. This, in fact, was the quid quo offered to the non-nuclear states: if you renounce the pursuit of nuclear weapons, we will proceed toward nuclear disarmament. The non-nuclear powers have always seen the CTB as a litmus test of superpower intentions to fulfill their part of the bargain. The superpowers have reneged.

As Mr. Tovish will report in more detail, there is a move underway by the non-nuclear states to utilize the amendment procedure outlined in the Limited Test Ban Treaty itself, to convert that treaty into a comprehensive test ban. Enough nations have now formally supported the call for an amendment conference forcing the three original parties (the United States, United Kingdom, and the Soviet Union), to convene such a conference. This may appear to be a quixotic venture, since any one of the three original signatories can veto any amendment. It will be a shameful

moment indeed if the United States, as now seems likely, exercises its veto to prevent a CTB. It is therefore my hope that a resolution coming from this committee will express the sense of the Senate that the United States should instead demonstrate leadership on this issue and prove its commitment to nonproliferation by supporting a CTB amendment.

Glenn Seaborg, as you know, the head of the U.S. Atomic Energy Commission under President Kennedy. He played a vital role in negotiating the LTBT. But he was also one of those advisors who urged the President not to agree to a CTB because of the disagreement over the number of onsite inspections. In a recent issue of "The Bulletin of the Atomic Scientists," Seaborg lamented that advice, calling the failure to achieve a CTB "one of the greatest disappointments in my life." "A comprehensive test ban," wrote Seaborg, "would forestall dangerously destabilizing developments." He went on to say that support for a CTB is the litmus test that separates those genuinely committed to reducing the nuclear threat from those who are not.

It is bad enough that we continue to tempt fate by failing to put the brakes on the arms race. But, as you know, we are already paying a staggering price by merely producing nuclear weapons. The legacy of nuclear weapons production has been an environmental and health disaster of enormous, but still unmeasured proportions. The cleanup, if indeed there can be an effective cleanup, will cost hundreds of billions of dollars. Can we afford the cleanup? Can we afford to spur on the arms race, with its enormous costs, by continuing to test nuclear weapons?

Our organization, among others, has highlighted the social and economic costs of the nuclear arms race. A small but significant part of that cost is directly traceable to nuclear test explosions themselves. The Department of Energy currently spends an average of \$50 million on each underground nuclear test explosion 15 times a year. At the same time, millions of Americans are without access to basic health care, and infant mortality in the United States remains shockingly high compared to other industrialized countries. Each month AIDS claims more than 3,000 new victims in the United States alone and still there is no cure. Following the recent earthquake disaster in Northern California, ABC news reported that 44 percent of our Nation's bridges are badly in need of repair, and this also represents, an enormous public health threat to our citizens. It is now clear as well that the overwhelming majority of Americans believes that the scourge of drug dependency, and not any foreign military force, is the peril that we face.

Solving our public health problems would enhance national security. Indeed, we will not be secure as Americans until they are solved. Nuclear weapons and in their development through testing weaken our ability to solve these problems. That is why 80 percent of all Americans support a comprehensive test ban treaty.

Mr. Chairman, as I said at the beginning, I am here today as a physician and a concerned American. I am not an arms control expert. But for too long the nuclear technocrats have held sway over the entire arms control debate. These experts created the arms race and their technical but limited expertise has created an internal logic in an arcane world where ordinary citizens usually fear to tread. But physicians, among others, bring a different sort of expertise to this debate. We know that 52 percent of the federal income tax dollar goes to military spending while our country spends 8 percent on health, 2 percent on food and nutrition and 2 percent on education.

Just a few weeks ago I returned from a trip to Hiroshima and Nagasaki. It was something of a homecoming because from 1969 to 1971, I served the U.S. Government in Hiroshima as a member of the Atomic Bomb Casualty Commission. In Hiroshima and Nagasaki, the narrow world of the nuclear weapons designers and strategists seems out of touch with reality. Standing in those cities one realizes the absurdity of deterrence as practiced today, a sham which has led to the development of a world arsenal capable of perpetrating more than one million Hiroshimas, with the equivalent of 4 tons of TNT for every person on Earth.

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Adm. Hyman Rickover, the Father of the United States Nuclear Navy and a man who appeared often before the Joint Congressional Committee on Atomic Energy when my father was its chairman, appeared before the Joint Economic Committee of the U.S. Congress on January 28, 1982. In response to a question from Senator Proxmire, Admiral Rickover stated, "I think from a long range stand point—I'm talking about humanity—the most important thing we could do is start in having an international meeting where we first outlaw nuclear weapons."

Seaborg, Rickover, and George Kennan—will we listen to the wisdom of their later years? Will we avoid the mistakes of the past or be doomed to repeat them? Change for the better suffuses the international climate. Mr. Chairman, the time is now.

As a physician, father, and citizen, I urge your support for a comprehensive test ban treaty. On behalf of the International Physicians for the Prevention of Nuclear War and Physicians for Social Responsibility, I thank you for hearing us.

The CHAIRMAN. Thank you very much indeed, Dr. Pastore, and for being here, speaking as you do as secretary of International Physicians for the Prevention of Nuclear War.

I would observe to the PRM's, the personal representatives of Senators who may be in the room, that following this hearing we are then going to have a business meeting voting on some treaties and confirmations.

If the Senators are serious about wanting to get these things through, I would hope they would show up just about now and in this regard I thank Senators Boschwitz, Sarbanes, and Lugar who have turned up, and I would hope they would be joined by others.

Mr. Tovish.

STATEMENT OF AARON TOVISH, EXECUTIVE DIRECTOR, PARLIAMENTARIANS GLOBAL ACTION

Mr. TOVISH. Thank you very much. It is an honor to be here today. I am speaking on behalf of an international organization, whose members are all serving in national legislatures, such as you.

This organization has a general policy of working for a world with greater security, both military, economic, and environmental.

I have submitted written testimony on the developments around the Partial Test Ban Amendment Conference, and it is a vast subject; I tried to condense it into nine pages. And I will try now, in my verbal presentation, to condense it yet further.

Yesterday was a historic day. For the first time in 26 years the parties to the Partial Test Ban Treaty met together at the United Nations. The amendment process for the Partial Test Ban Treaty is underway.

Where will it lead?

I think first we need to look at how it has come about. The process, which undoubtedly and admittedly is a very unusual approach to bringing together arms control negotiations, is a reaction to a series of disappointments and failures.

When, in 1963, the Partial Test Ban Treaty was signed, Dean Rusk in Moscow said, the next step is a comprehensive test ban. But when the Non-Proliferation Treaty was being negotiated in 1968, there still was no comprehensive test ban treaty. And at the insistence of the nonnuclear weapons states, the commitment to achieve a comprehensive test ban was reiterated in the preamble to the Non-Proliferation Treaty.

Just prior to the second Non-Proliferation Treaty review conference in 1980, the United States, the Soviet Union, and Great Britain issued the tripartite report on the progress of their negotiations for a comprehensive test ban.

They stated that they shared the desire of the international community to achieve a comprehensive test ban at the highest levels of

government. But when the third review conference of the NPT came in 1985, the U.S. administration had changed its position, had downgraded, to the point of total obscurity, the goal of a comprehensive test ban, and so there was a confrontation at the third review.

And through pressure from the nonaligned countries and other nonnuclear countries, agreement was reached at the conference that called for multilateral, comprehensive test ban negotiations, "with the exception of certain states," meaning the United States and Great Britain.

The fourth Non-Proliferation Treaty review conference is coming up next year. And the nonnuclear weapon states were not going to be in a position of going into that conference without any progress being achieved on the issue of a comprehensive test ban. They therefore took recourse to the Partial Test Ban amendment provisions. They did this most symbolically on the 25th anniversary of the Partial Test Ban treaty on August 5, 1988, when the proposal to extend the treaty to ban underground testing was put forward by six nations.

In the course of the following 7 months, it received the backing of 35 other countries, including some very important countries, particularly I think we should focus on the request, coming from India and Pakistan, two countries about which we are very concerned that they do not develop nuclear weapons and engage in a regional arms race.

Since April, when the threshold was reached on the number of countries that make the convening of the conference mandatory, the heads of government of the nonaligned movement met in Belgrade and called for immediate consultations, with a view to holding the amendment conference as soon as possible in 1990. Specifically, they wanted to have this process underway before the fourth NPT review.

Just last week the United Kingdom announced in the first committee of the general assembly that the depositary governments were making arrangements for the amendment conference to be held in Geneva in January 1991. They took this step without formal consultations with the countries that had requested the amendment conference.

Not surprisingly, this was resented and resisted by the countries that had made these sovereign decisions to call for the amendment conference.

After considerable reaction to this, for the first time, as I mentioned at the beginning, the parties to the treaty met yesterday. And an agreement was reached to establish a consultative group to look into the modalities and organization of the amendment conference.

So, I was surprised to hear that the invitations were going ahead, as we heard from Dr. Bailey, because it seems to me that one should wait and see how these consultations develop before we proceed on a course of action, which is explicitly resisted by many of the parties to the treaty.

Where are we headed?

The amendment process is definitely underway.

Where can it go?

I think there is a strong case to be made for holding the amendment conference, its initial session, prior to the NPT review. This would allow the nonnuclear nations to go to the NPT review with the test ban issue underway, with the test ban issue being dealt with in a serious manner. This would relieve the NPT review of one of the stickiest questions that it has faced in all of its previous meetings.

The countries that have requested the conference, who are circulating a resolution to this effect at the United Nations, want to see the conference held in New York, so that it can have the widest possible participation. And I think that that would be a very valuable exercise.

The value of the amendment effort, its unique feature—and this was not mentioned by the Government witnesses—is that if a majority of the countries, including the original three parties, do support turning it into a comprehensive test ban, it then becomes binding on all of the 118 countries that are currently parties to the treaty.

That includes, as I have mentioned, India and Pakistan, it also includes Argentina and Brazil, and it also includes Israel and South Africa. It includes all countries that have been considered proliferation risks.

This is extremely significant, which I will return to later.

The question then is, What actions are we looking for in order to continue this process to a successful conclusion?

It seems to me the first thing that is needed is a sign of flexibility on the part of the United States and the other depositary governments to convince these other countries in the world that we are aware of our commitments to achieve a comprehensive test ban, that we are aware of their strong feelings about this issue, that we are not going to shunt the amendment conference off into a corner.

I think it is terrific that this is getting a public hearing, because it will encourage these countries—even an event such as this—will encourage them that there is a responsive chord in this country.

Second, the United States and the other nuclear powers need to cooperate in looking seriously at the substance of a comprehensive test ban, looking at the verification protocols that will be needed to make this a sound treaty.

And then finally, we need to approve a comprehensive test ban for all of the excellent reasons that have been put forward by the previous two witnesses.

I think the Senate can play a great role in watching carefully over the behavior of the administration as they proceed on this. This treaty was ratified by the U.S. Senate. If it is to come to an amendment, the amendment will also be brought before the U.S. Senate, so the Senate should begin now, carefully and closely monitoring these developments.

I would like to relate the very end of an interesting conversation I held with Dr. Bailey just a few weeks ago, in general enough terms that I think I can describe it without violating any confidentiality of our conversation.

As the conversation ended, I was describing a vision of what the world could look like in 1994 and 1995. And I said that I thought

that the testing programs in Nevada and Kazakhstan would have been shut down; that an international monitoring system to verify the test ban would be in place, up and running; that we would be heading into the 1995 conference to renew the NPT with a great sense of confidence and with the support of the vast majority of the parties to the treaty for a lengthy extension.

And I said I thought this was a vision well worth working for. Mrs. Bailey's response was very simple. She said, "We will be working against it."

And I think we have here the question the Senate needs to ask, Will they be working for such a vision or will they be allowing the administration to continue working against it?

Thank you.

[The prepared statement of Mr. Tovish follows:]

STATEMENT OF MR. TOVISH

I thank the committee for the invitation to testify on the nuclear test ban issue. I speak to you on behalf of an organization, Parliamentarians Global Action, whose membership is drawn exclusively from active duty politicians like yourselves serving in national legislatures around the world. These parliamentarians and members of Congress come from all political parties; they are united in the search for improved military, economic and environmental security through strengthened international institutions.

In October 1984, when I was a consultant to Parliamentarians Global Action, I brought to the organization an idea about promoting a comprehensive test ban through an amendment to the 1963 Partial Test Ban Treaty (or Limited Test Ban Treaty). This proposal was adopted and it has been a rare privilege to work with the political leadership of Parliamentarians Global Action in advancing this project ever since. Parliamentarians Global Action, true to its name, crisscrossed the globe to build support for this unprecedented course of action. These efforts met with success, and that is why I am here today to report to you. I am an American; there are many other individuals, foreign politicians and officials who could speak to you with greater authority. I hope occasion can be found as events unfold for them to testify before you as well.

We—if I may use the organizational "we"—come to you today in the hope and confidence that the success this endeavor has achieved internationally will find a positive reflection in the U.S. Senate.

Within a half-year period in 1990 and possibly 1991, two of the most important multilateral nuclear arms control treaties will be scrutinized by the international community. The fourth nonproliferation treaty review conference will evaluate the performance of that treaty after 20 years and with only 5 years remaining of its initial term in force. The partial test ban amendment conference will consider extending the prohibition in the 1963 treaty on testing in the atmosphere, in outer space, and under water, to underground nuclear explosions, thus converting the partial ban into a comprehensive test ban treaty.

These treaties were approved for ratification by the U.S. Senate in 1963 and 1970 respectively. The distinguished chairman of this committee was a freshman Senator when the Partial Test Ban Treaty was debated and several other members of this committee participated as well in the debate on the Non-Proliferation Treaty. But I doubt there is a single member of the Senate who is not concerned about the future of these two treaties. The nonproliferation treaty review conference has an immensely important task before it: setting a proper course for renewal of the nonproliferation treaty in 1995. The partial test ban treaty amendment conference also has a vital purpose: achievement of a comprehensive test ban treaty which would be binding on all 118 parties to the treaty.

The Senate has guarded the nonproliferation policies of the United States with care. It should be particularly vigilant as the fourth review conference approaches. Many of the nonnuclear parties to the treaty are profoundly unhappy about the persistent imbalance in compliance with the treaty. They had signed the treaty hoping that this would clear the way for an end to the nuclear arms race between those nations that would continue to possess nuclear arms. Instead, nuclear testing continued and new nuclear weapons systems were deployed in vast numbers. While they welcome the INF treaty and look forward to a START agreement, they have

grave misgivings about the plans to further "modernize" these still immense arsenals.

The nonnuclear parties to the Non-Proliferation Treaty view achievement of a comprehensive test ban treaty as the minimal fulfillment of the pledge undertaken in article VI of the treaty for the "cessation of the nuclear arms race at an early date." It was at their insistence in 1968 that the determination expressed in the Partial Test Ban Treaty to achieve a comprehensive test ban treaty was reiterated in the Non-Proliferation Treaty. The recent head-of-government meeting of the non-aligned movement countries issued a statement saying that "achievement of a comprehensive nuclear test ban treaty is absolutely essential to the preservation of the nonproliferation regime embodied in the NPT."

Until fairly recently, the United States, the United Kingdom, and the Soviet Union were all committed to achieving a comprehensive test ban treaty as well. In the Tripartite Report of July 1980 of these three nations described the desire to achieve an early comprehensive test ban, "so widely shared by the international community," as also shared "at the highest levels of all three governments." The abandonment of this commitment by the United States in the 1980's has not been accepted by these nations. At the third nonproliferation treaty review conference, they successfully pressed this point. In the final declaration, "the conference, with the exception of certain states," called for multilateral negotiations on a comprehensive test ban treaty. It is well known that the "certain states" were the United States and the United Kingdom.

Prevented from launching such negotiations through other means and with the fourth review conference rapidly approaching, the nonnuclear nations took recourse to the Partial Ban Treaty's amendment provisions. The first formal action in the procedure was taken by Indonesia, Mexico, Peru, Sri Lanka, Venezuela, and Yugoslavia on the 25th anniversary of the signing of the Partial Test Ban Treaty, August 5, 1988, when they proposed an amendment to the treaty that would no doubt recall participating that day in the global action press conference here on Capitol Hill welcoming this initiative.

By April 1989, 35 other nations had formally requested that a conference be held to consider the amendment proposal. Senator Pell will recall the event in Washington marking that milestone. The total of 41 states more than satisfies the treaty's requirement that one-third of the parties request such a conference. The United States, the United Kingdom, and the Soviet Union are now under treaty obligation to convene the amendment conference. They have acknowledged this responsibility of the depositary governments and affirmed their intention to carry it out.

As I prepare this written testimony (November 1989), the parties to the treaty are meeting—for the first time in the treaty's 26-year history—at the United Nations to discuss where, when and how to convene the conference. The most important question they face is whether the conference will begin before or after the nonproliferation treaty review conference. These two issues are thus linked in timing and as well as substance. There are over a hundred states that are party to both treaties; developments at the nonproliferation treaty review conference will thus have immediate implications for the partial test ban treaty amendment conference, and *vice versa*.

In this regard, it is worth noting that there are six states that are parties to the Partial Test Ban Treaty which are not parties to the Non-Proliferation Treaty: Argentina, Brazil, India, Israel, Pakistan, and South Africa. Persistent efforts to persuade these states to join the Non-Proliferation Treaty have been to no avail. However, in the amendment process of the Partial Test Ban Treaty there is the unparalleled opportunity to bind these nations to a comprehensive test ban. The treaty's amendment provisions stipulate that if the United States, the United Kingdom, and the Soviet Union join in a one-half majority of the 118 parties to the treaty in approving and they ratifying conversion of the treaty to a comprehensive test ban treaty, then all 118 parties will be found to the comprehensive ban.

Two of the key nuclear threshold states, India and Pakistan, are among the 41 nations that requested the amendment conference. President Bush has personally encouraged Ms. Bhutto and Mr. Gandhi to sign a comprehensive test ban treaty. Their partial test ban treaty actions make it clear that they are prepared to do so if the United States, the United Kingdom, and the Soviet Union are parties to the agreement as well. In short, the nuclear powers are being asked by parties and non-parties to the Non-Proliferation Treaty to strengthen the nonproliferation regime by agreeing to end nuclear testing.

As you are well aware, the U.S. administration's position is that testing will continue "as long as the United States depends on its nuclear deterrent" because maintenance of the nuclear deterrence depends upon the regular "modernization" of the

nuclear arsenal. (In the attached appendix, I offer some personal views on the many sins covered by the words "modernization" and "reliability.") It is thus not surprising that the United States has declared its opposition to the conversion of the Partial Test Ban Treaty into a comprehensive test ban treaty. Nonetheless, the Senate might benefit from knowing how this position is faring in this new context of the partial test ban treaty amendment conference with its very close link to nuclear nonproliferation.

There were 3 years of advanced warning that a proposal to amend the Partial Test Ban Treaty would be made. The United States did not even speak to the resolution when it was first introduced at the United Nations in 1985. It was alone with the United Kingdom and France in voting against increasingly specific calls for action in 1985, 1986, and 1987. Not once, to my knowledge, did the United States approach any of the cosponsors of these resolutions to determine their intentions. The prevailing wisdom seemed to be that this was all bluff and no action on the part of the nonnuclear states, even through the 1987 resolution called on the nonnuclear parties to the Partial Test Ban Treaty to "formally submit an amendment proposal."

The opening of the bilateral nuclear testing talks in 1987, with the step-by-step approach, only spurred the nonaligned to greater action; they maintain a collective right to remain involved in the nuclear test ban issue. In January 1988, the six nation initiative leaders declared at their summit in Stockholm, "Any agreement that leaves room for continued testing would not be acceptable. We stress once again that a comprehensive test ban is already long overdue." In May 1988, at the foreign minister level, the 1987 U.N. resolution received the backing of the nonaligned movement. And as mentioned above, on August 5, the 25th anniversary of the signing of the Partial Test Ban Treaty, the six nations that had cosponsored the United Nations resolution took the decisive step.

As one of the treaty's depositary governments, the United States fulfilled its duty to circulate the proposed amendment. But it chose to combine this service to the parties with a formal demarche to every capital indicating that it opposed the convening of a conference to consider the amendment, and would block any such amendment if a conference were held. It is not clear whether or not this demarche was expected to persuade nations to abandon the amendment effort; at any rate it did not. By March 1989, one-third of the parties to the treaty had requested an amendment conference, enough to make the convening of the conference mandatory under the treaty's amendment provisions.

Among the requesters of the conference are many of America's closest friends in the Third World. These nations came to support a comprehensive test ban treaty in the 1960's and 1970's when the United States was a firm proponent of the idea. They were convinced then, and they have heard no argument since to convince them otherwise. The argument for "modernization" of nuclear weapons rings particularly hollow for nations whose entire economies desperately need modernization.

Over the summer, the states that requested the conference formulated their views on the best time and place (U.N. headquarters in New York) for the amendment conference. At the Belgrade Summit, the leaders of the nonaligned countries came out in favor of the conference being held "as soon as possible in 1990," and called for immediate consultations among interested parties and the depositary governments. During the United Nations General Assembly this fall they began to gather cosponsors on a resolution recommending that the amendment conference hold an initial session in May 1990, prior to the NPT review conference in August.

Meanwhile, the United States, the United Kingdom, and the Soviet Union met among themselves a couple of times. Apparently after initial reluctance, the Soviet Union was persuaded to go along with a plan to simply announce that the amendment conference would be held for 2 weeks in Geneva beginning on January 8, 1991, well after the NPT review conference. A two sentence statement to this effect was made by the United Kingdom last week at the United Nations.

There had been no direct consultations; to the nations that had requested the conference, this announcement sounded like a directive. Not surprisingly, they do not accept this interpretation of the role of the depositary governments. In customary international law the depositary is meant to service, not dictate to, the parties; indeed, in the Vienna Convention on the law of treaties all parties have a right to partake in decisions on how an amendment proposal will be handled. Are the depositary governments only asserting an initial preference? One hopes so. Should such high-handed behavior persist up to the fourth amendment conference review conference, it could spell disaster.

The nonnuclear nations would like the amendment conference to begin before the NPT review conference so they can point to at least one sign of progress on the call

of the 1985 review conference for multilateral comprehensive test ban negotiations. Since it is conceded that the amendment conference is going forward, why not let it serve this useful purpose? The decision, if it sticks, to hold the amendment conference in Geneva will make it very difficult for a large number of the poorer parties to the treaty to attend, and will cost more than holding it in New York.

Resistance to this approach generates fear among the nonnuclear nations that the nuclear powers intend to collude in shunting the amendment conference into obscurity and in railroading it to a premature negative conclusion. Cooperation among the nuclear powers in this tactic is not, in the nonnuclear eyes, a cause for celebration. To avoid an unnecessary confrontation at the NPT review conference, the nuclear powers should eschew any hint that a condominium is being established among them to avoid fulfillment of article VI commitments.

An unresponsive attitude by the nuclear powers at the amendment conference and the review conference would undermine the standing of Third World national leaders who need and deserve everyone's support. These leaders hold out hope to their people that the nuclear powers will sit down and reason with them even though they do not possess nuclear weapons. If these leaders are rebuffed, new leaders will come forward who favor competing in international affairs on "equal terms" and who may advocate exercising the nuclear option with increasing boldness. Other leaders who have been undecided about which course to follow will take their cues from these developments. The voices of moderation will be drowned out by exhortation to extremism, and the nuclear powers will have little authority to counsel restraint.

Beyond 1990 looms 1995, the year when the future of the Non-Proliferation Treaty is to be determined. The decision on extension of the treaty's term in force will be made by a simple majority vote. Microstates will have the same say as superpowers. The nonaligned nations have a large and natural majority. The time to start forging a majority to extend and strengthen the Non-Proliferation Treaty is in 1990. It is not at all helpful for U.S. officials to insist that the U.S. will oppose continuation of the Non-Proliferation Treaty if its extension is linked in anyway to an end to nuclear testing.

Insensitivity to the nonproliferation issue could also determine the superpowers' ability to provide leadership to nonproliferation efforts directed at other weapons of mass destruction and their means of delivery. These efforts must ultimately include multilateral agreement on nonproliferation. Who, it must be considered, will be willing to negotiate such agreements if the basic bargain of the Non-Proliferation Treaty is viewed as being systematically circumvented?

Lately, there has been talk of a threat from new centers of nuclear power in the Third World. It would be reassuring if this talk accompanied by a recognition of the urgent need to conclude comprehensive test ban treaty, especially by means of the Partial Test Ban Treaty with its special binding powers. Rather it is accompanied by calls for intensified efforts to orbit a space "defense." As the grip of the Cold War loosens, it is most disheartening to witness, in some circles, this search for new enemies. Surely the resources being freed from confrontation with the Soviet Union can be put to better use.

The U.S. Senate has a vital role to play in assuring that common sense prevails in America's multilateral arms control policy. The 1990's must be the era of multilateral arms control. No longer can the nuclear powers rest assured that nuclear weapons and their means of delivery are beyond the reach of other nations. Multilateral treaties with equitable rules must be negotiated so that effective verification regimes—such as the IAEA—can be established. Any beyond that the playing field itself must be leveled.

Continued nuclear testing stands directly in the path of this agenda. The Senate has consistently supported by very large margins resolutions on negotiation of a comprehensive test ban treaty. These resolutions were cast in bilateral terms. Now a multilateral option has been created with the outstanding feature of binding 118 at one stroke to a comprehensive test ban treaty. We hope that this will encourage even broader support for the amendment conference.

APPENDIX

"MODERNIZATION" AND "RELIABILITY"

Parliamentarians Global Action approaches issues such as nuclear deterrence from the broad perspective of global security. It does not analyze such issues from the atonal perspective of any particular country. The following points are personal opinions, held by the testifier, and are offered as an American citizen.

In defense of nuclear testing the administration has advanced two key arguments. Modernization and reliability have been held up as great virtues of the nuclear weapons program. The words seem unimpeachable; who, in their right mind, could favor antiquated, unreliable weapons? Common words are deceptive when they are applied to uncommon circumstances. Nuclear weapons pose an uncommon danger to humanity. There is one and only one temporarily justifiable application of nuclear weapons: to deter the use of nuclear weapons by any other nation during the time in which every effort is made to forge sound agreements that render such global endangerment unnecessary. Any weapon that presents a threat above and beyond basic retaliation or that complicates the task of reaching agreement on their final elimination is counter productive in national security terms.

Since nuclear parity was achieved in the late 1960's, "modernization" has been a cover for what one might call "hyperdeterrence." Hyperdeterrence has two objectives: first, to deploy a massively articulated retaliatory capability at a high state of readiness; second, to sow doubt in the adversary's mind that he can launch a first strike which would have one perspective, it is worth considering what it means to the adversary. If his first strike is in doubt, then his ability to retaliate is even more in doubt. In short, the adversary may feel that his ability to deter is slipping away as "modernized" weapons are deployed, ready for use, against him. This in turn forces the adversary to seriously consider the preemptive strike option while it is still available, and to take every measure to enhance his first strike capability. The entire purpose of deterrence has been obviated.

"Modernization" does not preserve deterrence it undermines its. The testing it requires also undermines the nonproliferation regime. Modernization is not good for national or global security. Common security demands that the nuclear forces, while they are needed, be credible as a retaliatory force (mainly through invulnerability), and not credible as a first strike force (mainly through low warhead-to-delivery-vehicle ratios).

We also need to distinguish between basic reliability and "hyperreliability." A soldier in battle wants and deserves a reliable rifle. Reliability in the service of basic deterrence was achieved in the 1960's. It is not necessary that every nuclear weapon perform precisely to specification. Retaliatory capability—while still needed—is robust enough to inflict totally unacceptable damage even if, say, half the nuclear weapons fail to deliver their full yield. Hyperreliability is needed only for hyperdeterrence strategies. Only if you are planning a preemptive strike do you require near perfect reliability at full yield. The search for hyperreliability through nuclear testing is destabilizing. Common security is enhanced by a measure of unreliability.

The United States does not need modernization or hyperreliability; it need to prevent the Soviet Union from pursuing modernization and hyperreliability. A comprehensive test ban is the most direct way of achieving that goal. Continued pursuit of nuclear perfection is antithetical to nuclear arms control and will subvert the ultimate goal of universal nuclear disarmament. It is for this reason that the test ban has been called the "litmus test" of the nuclear powers intention to abandon the nuclear arms race.

It is also for this reason that the test ban is anathema to any government pursuing hyperdeterrence. Recently the Bush administration adopted Strategic Integrated Operating Plan 6F. Among other things, the plan calls for Earth-penetrating warheads to kill the top 170,000 Soviet personnel in their underground bunkers in the first wave of a ballistic missiles retaliation. To appreciate how this wrong-headed weapon is, just imagine how we would feel if the Soviet Union were deploying them against us. The weapon is under development now, a comprehensive test ban treaty would prevent either side from getting it.

The Strategic Defense Initiative is a typical hyperdeterrence concept. I could never understand why drawing an analogy with a shield was supposed to make a convincing case for its defensive character. Shields don't kill people; how, you might as, can I be against shields? Unfortunately, common sense dictates that a soldier will be far more willing to go into battle if he has a shield to deflect the adversary's sword. Or, in closer analogy to nuclear war, the shielded soldier can attempt to get in a first strike and then easily thwart any feeble counter thrust. Nuclear testing is needed to develop the directed energy devices for such shields. A test ban would ensure that, at the very least, these shields were not nuclear pumped.

Abandonment of hyperdeterrence—not giving up "reliance on our nuclear deterrent"—is the prerequisite for achieving a comprehensive test ban treaty. The Partial Test Ban Treaty amendment effort challenges America to get out of the hyperdeterrence business. And it throws into the bargain an extraordinary opportunity to stem nuclear proliferation.

The CHAIRMAN. Thank you very much.

Would each of you favor an early agreement that would substantially reduce the amount of the nuclear yields? My understanding is that your answers are probably "Yes," but I will ask first, Dr. Pastore.

Dr. PASTORE. Could you restate it, Senator?

The CHAIRMAN. Certainly.

Would you favor an early agreement substantially reducing the yields of allowed nuclear tests?

Dr. PASTORE. If it were seen clearly to be a preliminary step on the way toward speedy ratification of a comprehensive test ban, that would be fine.

The problem is that sometimes when such a measure has been proposed, many of us have felt that it was to be not just a stopgap measure, but something in lieu of a comprehensive test ban, that would detract or distract from the real goal, which is to stop all nuclear weapons testing.

But, certainly, if the Senator and the Senate felt that that would be a reasonable first step toward a CTB, then we would be in favor of that.

Admiral CARROLL. Mr. Chairman, the idea of putting ceilings, lowered thresholds, and perhaps even quotas on the number of explosions as an interim step is a sound one from a political standpoint, but not if it is allowed to drag on in a salami slicing mode. Negotiations might drag on for years about how we would verify the new threshold and identify the number of explosions that are permitted. I could see us haggling for years and years and years just as we are haggling now over the verification of the 150-kiloton limit in the Threshold Test Ban Treaty.

If it started the process moving, however, and it was agreed that this would lead to negotiations on the comprehensive test ban by the year 1995, that would be progress and could be supported. I think the Congress and the public at large could support it, not as an open-end delaying tactic, salami slicing, but as planned progress toward a comprehensive test ban.

May I expand just briefly on one thing, sir?

Dr. Bailey testified that movement toward a comprehensive test ban might very well destabilize the nonproliferation regime. I was kind of shocked to hear that because her own handbook, the handbook of the Arms Control and Disarmament Agency, concludes its discussion of the nonproliferation treaty by saying: "A comprehensive test ban treaty prohibiting the testing of nuclear explosions is viewed by many nonnuclear weapon states as a sine qua non for preventing the emergence of additional nuclear weapons states and for preserving the NPT regime."

This says that if we are going to protect NPT, we have to make progress on a comprehensive test ban. She was saying exactly the opposite today.

The CHAIRMAN. Very good point. Thank you very much, Admiral Carroll.

Mr. Tovish.

Mr. TOVISH. I might add just on that line and then I will return to the threshold issue. When the heads of government of the nonaligned movement met in Belgrade in September, they for the first

time in many, many years referred to the nonproliferation issue, and they said that the achievement of a comprehensive test ban was absolutely essential to the preservation of the nonproliferation regime embodied in the NPT. I think we have a very clear statement of that.

On the threshold issue, I think we should recall that the Soviet Union is ready at a moment's notice to end nuclear weapons testing and to conclude a comprehensive test ban either directly with the United States or through the amendment process. That is on record, and I do not see the value of the United States working for lesser measures since that is the goal.

As an interim measure, however, as long as comprehensive test ban negotiations themselves are underway so that the goal is clearly stated and the work is clearly underway, then I can see some value perhaps in a bilateral arrangement that is perhaps a gesture of good faith to those who are working toward a comprehensive test ban.

The CHAIRMAN. Thank you.

What indication do you have that a comprehensive test ban actually would curb the nuclear proliferation? Again, I will start with Dr. Pastore.

Dr. PASTORE. I am a physician, Senator, but I listen to the people who know this issue very clearly and carefully. It is my understanding that it is impossible to develop new generations of weapons systems or to develop a nuclear capability without the ability to test nuclear weapons.

I think that any country that was to seriously want to develop a nuclear arsenal would eventually have to test nuclear weapons.

It is also my understanding that a small number of nuclear weapons, of course, could be held by a smaller state without actually having to have explosive testing. So, I think that while small numbers of nuclear weapons could be scattered around the world without their having to be exploded by sovereign states, the development of a major nuclear arsenal would not be possible without testing.

The CHAIRMAN. Thank you very much. Excuse me for a moment. [Pause.]

Excuse me for interrupting, but I think we have this question of the business meeting of the committee. So, far, there do not seem to be many people who have come to the business meeting. I wanted to again make the statement that at 11:30 a.m. we will vote on the items. If the Senators are not here by 11:30 a.m., that would indicate to my mind a lack of interest, and we can let the nominations and treaties roll over to the next routine business meeting of the committee.

I hope the personal representatives will relay this message to their respective bosses.

Admiral Carroll.

Admiral CARROLL. Mr. Chairman, the universal test ban would not, per se, prevent the accumulation of small holdings of fission-type weapons by third parties. They can be developed and produced in small numbers in rudimentary form without testing. However, if the United States and the Soviet Union and other major nuclear states participate in a nuclear test ban, then they have a strong

shared common interest in preventing nuclear proliferation. By using their economic and political powers, they can, I believe, impose a nonnuclear regime on the Third World nations whom they are now assisting.

In all candor, many members of the Third World who are attempting to achieve nuclear capability are receiving some assistance from the nuclear states. Once the nuclear states stop testing, then they are going to stop helping this process along elsewhere in the world.

Mr. TOVISH. I think it is worth underlining that through the partial test ban amendment effort, one would establish a regime in which 118 countries have agreed that there is a threshold that no one should cross over into the nuclear club.

There is tremendous psychological value in not having had a nuclear explosion conducted by a new country since 1974. If that can be extended, I think the world is a safer place.

If that barrier is broken and one morning we wake up and read the morning newspaper that Pakistan or Argentina or some other country has exploded a nuclear weapon, I think it will create an atmosphere that will be detrimental to all efforts to secure the world.

The CHAIRMAN. Do you all have the same approach with regard to the amendment process, that we should consider that in a serious manner?

What would you say, Mr. Tovish?

Mr. TOVISH. Could you repeat the question? I am sorry.

The CHAIRMAN. Should we really take the amendment process very seriously indeed and see if we can reach a total test ban treaty that way?

Mr. TOVISH. I think that process should be given all due consideration and should be given a good faith effort. It is very easy to simply have a policy of brushing this and that aside and unilaterally deciding what will and will not be discussed. The world is becoming an extremely complex place. I think there are many who recognize that there are new centers of power developing, some even in the Third World. We need to engage these countries. We need to bring them into a process.

Now, the NPT process fails to include a number of very important countries, and the partial test ban amendment process does include those countries. I think if we try to brush it aside, it will rebound badly in the long term.

The CHAIRMAN. Admiral Carroll?

Admiral CARROLL. I do not believe that the amendment conference can produce an end to nuclear testing, but I do believe it can communicate a sense of world community opinion and place considerably greater pressure on the nuclear states to get on with this business of the nuclear test ban.

Let me draw an analogy. The people of the State of Maine 2 days ago voted to stop cruise missile testing in the State of Maine. It is going to have no effect whatever on the policies of the U.S. Government, but it was a political expression that I think must be considered by their delegation here in Washington as representative of the will of the people of the State of Maine.

The more of these efforts we get going where citizens around the world have a venue in which they can put forward their views in forceful fashion, the more likely it is that the senior states are going to consider them seriously.

The CHAIRMAN. Dr. Pastore.

Dr. PASTORE. Mr. Chairman, I think one of the main advantages of the amendment process is the public discussion that it engenders, not just here but around the country and around the world.

I think that the success or failure of the amendment process hinges completely upon the attitude of the U.S. Government and the administration, and we have heard that stated here earlier this morning. They essentially promised to veto the resolution.

I think, unless their mind can be changed, that the amendment process will not succeed obviously, but in this country we have the ability to change and the responsibility to change the mind of the administration. The way that we do it in this democratic society is to expose the arguments that are being used by the administration or by anyone else when we disagree with them.

I think that what we heard today was an illogical defense of the administration's insupportable position. There is no problem with verification that should impede a CTB. There is no need to test weapons to check out their safety or reliability. In point of fact, there are no safe nuclear weapons, so one cannot ascertain their safety.

I think the more that this discussion leads to public information and influence through the electoral process on the administration, the amendment process will be a success, and I think that is what we are working for.

Mr. TOVISH. I think it is of historical interest that when the Carter administration was looking at the possibility of achieving a comprehensive test ban, consideration was given to the idea of amending the Partial Test Ban Treaty.

The obstacle at that time was that Pakistan and Argentina were not parties to the treaty, and India and Brazil would have taken great exception to being bound to a comprehensive test ban by this manner which left one of their chief rivals unbound. Since then, Argentina and Pakistan have joined the treaty, have supported this approach at the United Nations, and, as I mentioned, Pakistan has actually requested the conference.

So, I think that if the will can be developed to end testing, then this is the vehicle that definitely should be used.

The CHAIRMAN. Thank you. Thank you very much.

Could you explain to me a little bit what the Parliamentarians Global Action Group is?

Mr. TOVISH. It would be my pleasure. It is a membership organization for people who are serving in their national legislatures. They come together from all political parties with the view toward strengthening international institutions so that there is greater military, economic, and environmental security. It is in very broad terms. We have members in some 30 countries, some 500 members.

Our previous involvement in the disarmament issue includes working very closely with the leaders of the six-nation peace initiative in attempting to improve the dialog between the nuclear powers when it was at its lowest point in the mid-1980's.

The CHAIRMAN. Who funds it?

Mr. TOVISH. It is funded largely by U.S. foundations. We get money from the Rockefeller Foundation, Carnegie Corp., McArthur—

The CHAIRMAN. Do you have exmembers as well as present members?

Mr. TOVISH. We have just established an alumni association; yes.

The CHAIRMAN. I was wondering if any of you had any other thoughts as to if the amendment process fails what other way there would be to achieve a comprehensive test ban?

Mr. Tovish.

Mr. TOVISH. I have been concentrating on seeing that it does not fail, so I do not have a specific answer to that. I think the most straightforward way to get this process going in an unstoppable direction would be to hold a moratorium.

I think that it is not inconceivable that a U.S. President would approach the leader of the Soviet Union and suggest a moratorium. It has been done in the past. Once that is in place, I think negotiation of a comprehensive test ban could be handled in any number of ways.

The CHAIRMAN. Thank you.

Admiral CARROLL. As the administration witnesses made very clear, this administration will take no lead in any such effort. So, it would seem that if we are talking about the United States, we are talking about Congress.

I believe it is 165 members, not 135, who have signed the statement calling for progress toward a comprehensive test ban. That progress could greatly accelerate if Congress became emboldened and withheld money for nuclear testing so long as the Soviet Union refrained from testing.

They have indicated that they will do so, and we certainly have the seismic and national technical means to determine whether they would be complying with such an understanding. I would hope out a very extreme hope that Congress might act in such a positive and forthright fashion.

It seems to me that you have the support of something close to 70 percent of the American people for such an action because they have consistently polled at about that level favoring an end to nuclear testing.

The CHAIRMAN. So, you say the old weapon of the power of the purse is one that should be used.

Dr. Pastore?

Dr. PASTORE. Mr. Chairman, I think that 85 percent of the American people support, 65 percent very strongly and another 15 percent or so support somewhat, a comprehensive test ban now.

In addition, there is an outstanding offer from Gorbachev to reinstitute the moratorium if the United States will follow suit. So, I think it is there for the taking. I think that a CTB now, especially with the climate in the Soviet Union and what they need, which is not nuclear weapons, the opportunity is really there.

What is not there is the political will among ourselves to make it a priority item and to essentially convince the administration that it must go in that direction. It simply must be insisted upon. I think the Congress really has the responsibility to represent those

85 percent of the American people in arguing that case strongly at the White House.

The CHAIRMAN. Very good.

Thank you very much indeed. I would say at this point the record will stay open for 1 week for any questions that Members might have to offer.

If there are any final remarks that any of you care to make, you are welcome to do so.

We will recess until 11:30 a.m., when we hope we will have a quorum here to do the regular committee business. Otherwise, I will go ahead and recess.

[Whereupon, at 11:18 a.m., the hearing was adjourned, to reconvene subject to the call of the Chair.]

APPENDIX

PREPARED STATEMENT OF THE PEACE/DISARMAMENT ISSUE GROUP

We welcome this opportunity to express publicly our support of a Comprehensive Nuclear Test Ban, and our support of the amendment conference called by the United Nations to make the Partial Test Ban Treaty comprehensive.

We believe that the Comprehensive Test Ban would help to:

- Check the nuclear arms race and reduce the risk of nuclear war;
- Inhibit the proliferation of nuclear weapons;
- Eliminate a health and environmental hazard; and
- Reduce the budget deficit and the national debt.

In agreement with the Roman Catholic Bishops of the United States, we call for "a renewed effort, pursued with much greater purpose and conviction, to complete negotiations on a comprehensive test ban treaty."

The amendment conference offers the United States a unique opportunity for such negotiations. The U.S.S.R. has already indicated support for the amendment. We urge the leadership of the U.S. Government to response to this opportunity for negotiation with courage and faith.

We agree with the statement of the Second Vatican Council of the Roman Catholic Church that "the arms race is one of the greatest curses on the human race and the harm it inflicts upon the poor is more than can be endured."

Our own ideals and concerns as Sisters of Mercy impel us to raise our voices on behalf of those poor, and on behalf of the planet we all share.

SISTER MARILYN CANNING; SISTER BARBARA DUCHELLE; SISTER PAULA MARIE KOPLAR; SISTER MARGARET LUBY; SISTER PATRICIA McKEON; SISTER CONSTANCE O'MEARA; SISTER DOROTHY SYNKEWECZ; SISTER MARY ALICE SYNKEWECZ; SISTER MARY JANE WADDY.

SISTER MARY DALY, *Peace/Disarmament Issue Leader, Mercy Justice Coalition.*

SISTER KATHRYN WRINN, *Unit Coordinator, Mercy Justice Coalition.*

PREPARED STATEMENT OF PEACE LINKS

Peace Links is committed to fostering the involvement of grassroots American women in the political process, and making women's involvement count for peace. This fall we invited our supporters around the country to sign this message to the President:

Dear President BUSH: Forty-one nations have called for a U.N. conference to eliminate underground nuclear testing. A major threat to our lives and our environment. As a world leader, you must seize this historic opportunity for peace. I urge you to give your full support to the Comprehensive Test Ban.

So far, more than 2,500 women and men have signed their names and addresses to the appeal and returned them to our office. Hundreds more have signed their names to petitions bearing our message. Newsletters around the country have reprinted the message and invited their readers to return the forms. Every day's mail brings more of them.

Many Peace Links supporters have gone beyond just signing their names. They have written and called their members of Congress to express their support for the CTB, and contacted us to ask what else they can do. The sum of these responses give overwhelming evidence of the concern ordinary Americans feel about nuclear testing, which endangers our health, pollutes our environment, and impels the arms race.

We appeal to our President and all the members of Congress to promote our common defense by directing resources to the things that make for real security: environmental integrity, affordable housing, education, health and nutrition pro-

grams, jobs that pay a living wage, and loving care for children, the elderly, and the disabled. The world is ready for a Comprehensive Test Ban. The United State must not lag behind.

PREPARED STATEMENT OF GREENPEACE USA

Mr. Chairman, members of the committee, we thank you for the occasion to submit this written testimony on behalf of the 1.9 million supporters of Greenpeace USA. Greenpeace USA is a part of Greenpeace International which has offices in 22 different countries and a total of 4 million members worldwide.

As this hearing concerns the "Test Ban," our testimony will cover the following topics: (a) the importance of negotiating a Comprehensive Test Ban Treaty (CTBT) with the other nuclear states, (b) the necessity of a CTBT for the preservation of the Nonproliferation Treaty (NPT), and (c) the opportunity which the upcoming amendment conference to the Limited Test Ban Treaty presents to establish a CTBT.

(a) Since its inception in 1971, Greenpeace has been actively campaigning for a comprehensive end to nuclear testing. A CTBT is, if anything, more important now than ever. Without reviewing all of our arguments for a CTBT, we insist that strategic arms limitations only make sense in the context of a nuclear testing free world. If the goal is to work toward nuclear disarmament and global security, then a CTBT must be the first step, as the continued modernization of the nuclear arsenals, which only nuclear testing allows, undermines the very process that we are working toward. Simply put, a future world which has half as many nuclear weapons which are twice as destructive is not tangibly safer than what we have today.

As a corollary to this argument, lowering the allowable threshold of nuclear tests from 150 kilotons to 1, 5, or 10 kilotons will not be effective in inhibiting the modernization of nuclear arsenals. Therefore, Greenpeace opposes measures to this end, despite their congressional support. Additionally, ratification of the Threshold Test Ban Treaty and the Peaceful Nuclear Explosion Test Ban Treaty should proceed, but should not be understood as significant progress toward nuclear disarmament. Finally, we are convinced that verification of a CTBT is simply a question of political will, not of technical feasibility.

(b) A CTBT is absolutely essential for the preservation of the NPT, which is the main component of the nonproliferation regime. The parties of the NPT are bound "to seek to achieve the discontinuance of all test explosions of nuclear weapons for all time and to continue negotiations to this end." The NPT is intended to discourage vertical proliferation by the nuclear states as well as horizontal proliferation by the nonnuclear states so as not to be discriminatory.

As it stands now, only horizontal proliferation is being addressed, with mixed success. A CTBT would stem vertical proliferation (this is, weapons modernization); as a result, it would encourage nonnuclear states as well as threshold nuclear states to refrain from the acquisition of nuclear weaponry. This works for two reasons: it would bring the nuclear weapons states into compliance with their treaty obligations, leading nonnuclear countries to do the same, and it would halt the qualitative augmentation of the nuclear threat to the nonnuclear world. Nonnuclear states would feel safer and thus would be less inclined to pursue nuclear weaponry.

The NPT review conferences in 1975, 1980, and 1985 were all characterized to acrimonious debate over the failure of the nuclear states to achieve a CTBT. The last review conference will occur in 1990, and the Treaty has a 1995 expiration date. It follows from the points above that the immediate negotiation of a CTBT is the *sine qua non* for the establishment of a post-1995 nonproliferation regime.

(c) A historic opportunity to conclude a CTBT will be presented to the nuclear nations of the world through the upcoming amendment conference to the Limited Test Ban Treaty (LTBT). This conference will occur within the next 18 months, and it will provide *prima facie* a highly appropriate, pragmatic, and time-proven multi-lateral forum through which to institute a Comprehensive Test Ban regime.

At present 118 countries are party to the LTBT. So, if 58 countries vote to amend the Treaty, the amendment binds all 118 countries. Several countries will be bound to a CTBT which have not signed the NPT, showing once more how crucial and effective these efforts are to nonproliferation. It is true that two important nuclear countries, France and China, are not party to the LTBT and therefore would not be legally bound to the resulting CTBT. However, it is highly unlikely that these two countries would continue to test in a climate of international prohibition.

The "depository governments" of this Treaty, the U.S., the U.S.S.R., and the U.K. have veto power over all proposed amendments. Given the overwhelming momentum for a CTBT among virtually all of the 115 non-depository parties to the LTBT,

it appears that a potential veto is the last hurdle this process will face. While the U.S.S.R. favors a CTBT, both the U.S. and the U.K. claim that they oppose a CTBT in the foreseeable future. Representatives of the U.S. Arms Control and Disarmament Agency have indicated that the U.S. intends summarily to invoke its power to veto. Such an action would be shameful and irresponsible in light of the tremendous contributions to global security which would inevitably result from this amendment procedure given U.S. participation and approval.

This amendment conference comes at a time of decreasing East-West tensions, a time when the rationale for nuclear testing seems particularly obscure. For example, deterring environmental crises seems to assume more and more relative importance and urgency when compared to deterring a nuclear attack from the Soviet Union. It also comes at a time when it is becoming increasingly apparent that multi-lateral negotiations and internationalism will provide the solutions to many of the global problems facing us. U.S. participation in and approval of the amendment conference can only augment this trend toward creative, cooperative problem solving.

We thank the committee for including this testimony in the hearing, and we hope that you will consider these views as you create policy on the Comprehensive Test Ban Treaty issue.

PREPARED STATEMENT OF PEACE ISSUE GROUP OF THE SISTERS OF MERCY

This written testimony is submitted to the U.S. Senate Foreign Relations Committee by the Peace Issue Group of the Sisters of Mercy Cincinnati Province Justice Committee. It is in keeping with the peace/disarmament goals of the Sisters of Mercy Justice Coalition 1989 National Conference.

Special gratitude is due Senator Pell for calling this hearing. The case needs to be made that a comprehensive test ban treaty is most advisable, and positive, constructive U.S. participation in the coming U.N. Amendment Conference for the Partial Test Ban Treaty is historically necessary. We enthusiastically encourage Senator Pell's efforts to develop and introduce as soon as possible a Senate resolution in support of both a comprehensive test ban treaty and the U.N. Amendment Conference. We will be urging Senators from 14 other States to join in this effort.

We urge strong Senate support for a comprehensive test ban treaty for the following summarized reasons.

A comprehensive test ban treaty would:

- + Prevent development of new, more dangerous war fighting nuclear weapons;
- + Stop the destabilizing and qualitative arms buildup;
- + Inhibit the proliferation of nuclear weapons;
- + Demonstrate real superpower arms reduction to the nonnuclear signatories of the nonproliferation treaty—this a precondition for renewal of the NPT in 1995 and an assurance of its viability. Since the treaty was signed, the number of strategic weapons has grown sixfold; and

- + Save the U.S. Government some \$8 billion a year—an amount double that currently being spent on much needed housing, for example.

Positive, constructive participation and leadership by the U.S. and U.N. partial test ban treaty amendment conference is greatly needed for these summarized reasons:

- + An amendment Partial Test Ban Treaty will close the loophole of underground testing which has fueled the whole nuclear arms race. Such a change would be a fundamental turning point in the long and agonizing effort to attain nuclear arms control;

- + Constructive support from the U.S. in the amendment conference will demonstrate U.S. ability to exercise creative leadership in this time of rapid change in international relationships;

- + The amendment conference will provide the opportunity for all concerned nations in the global community to take part in negotiations to end nuclear testing. This is in keeping with professed U.S. national values;

- + It will rightfully make the nuclear powers more accountable to the international community;

- + A multilateral approach involving all the world's nations and especially all nuclear powers is much more helpful than a bilateral United States-Soviet pact. It would in fact be tragic if the U.S. Government foils this conference, losing this special opportunity; and

- + The amendment conference will support ongoing revitalization of the United Nations.

Thank you for this opportunity to present testimony.

SISTER PATRICIA SCHNAPP,
RSM.

SISTER MARY SCHMUCH,
RSM, *Peace/Disarmament Issue*
Leader.

PREPARED STATEMENT OF WOMEN STRIKE FOR PEACE

Women Strike for Peace welcomes the new initiative to halt nuclear weapons tests and strongly supports the convening of an amendment conference under the auspices of the United Nations for the purpose of amending the Limited Test Ban Treaty in a Comprehensive Test Ban.

It has been more than 30 years since negotiations on a Comprehensive Test Ban were first held in 1985 by the three existing nuclear powers at the time. In the interim, new and more devastating weapons have been developed and deployed, thus accelerating the arms race. The problem of radioactive waste disposal is of immediate concern with no solution in sight.

Women Strike for Peace began in 1961 as a 1-day strike to protest the nuclear arms race. Tests were poisoning the air and Strontium 90 children's health, the women demanded: "End the Arms Race, Not the Human Race!" The outcry of mothers and other deeply concerned individuals around the world brought the U.S. and the U.S.S.R. to the negotiating table. The Limited Test Ban Treaty was signed, ending weapons tests in the atmosphere. Unfinished business remains—to ban testing in the environment where it is still allowed—underground.

The Bush administration has chosen to ignore the overwhelming public support here and abroad for an end to all nuclear testing. While pressing other nations to prohibit the proliferation of nuclear weapons, the administration has ignored their pleas to stop nuclear testing, thereby jeopardizing the Non-Proliferation Treaty.

Today as tensions between the U.S. and the U.S.S.R. lessen, we have the opportunity to achieve the long overdue comprehensive ban on nuclear testing. Forty nations have requested a conference for this purpose. Women Strike for Peace urges a renewed commitment on the part of the Senate toward the completion of a Comprehensive Test Ban.

ETHEL TAYLOR,
National Coordinator.

PREPARED STATEMENT OF SANE/FREEZE CAMPAIGN FOR GLOBAL SECURITY

Joining voices from Maine to Hawaii and from Georgia to Alaska, the more than 170,000 members of SANE/FREEZE: Campaign for Global Security today renewed their call for a Comprehensive Test Ban Treaty. At the same time they offered their enthusiastic support for the convening of an amendment conference under the auspices of the United Nations for the amendment of the Limited Test Ban Treaty into a Comprehensive Test Ban Treaty.

Since the latter part of the 1950's the leadership of SANE has led the national movement for a total nuclear test ban. That cause was shared by the more than 1 million supporters of the nuclear freeze movement 20 years later. It is now a central part of the political goals of the two merged organizations.

The original idea remains powerful in its logic and particularly compelling in light of today's political realities. Only by bold action to stop nuclear testing can the spread of deadly nuclear weapons be halted. Now, in a time when the U.S. faces an enemy turned friendly and the only true risk is that of the proliferation of nuclear weapons to other nations, a total halt to the testing of these and the next generation of weapons is a necessity.

The invitation to action provided by the 41 nations who have called for the amendment conference is one which cannot be ignored or postponed. SANE/FREEZE calls upon the leadership of the U.S. Congress to take whatever action is necessary to make the CTB a reality.

NICK CARTER,
Executive Director.

PREPARED STATEMENT OF FRIENDS COMMITTEE ON NATIONAL LEGISLATION

The Friends Committee on National Legislation is composed of friends (Quakers) from across the United States who seek to bring spiritual values to bear on public policy decisions. We believe that peace among the peoples of the world is the will of God, and that violence is an unacceptable response to conflict. The worldwide arms race threatens the survival of life on Earth, diverting resources from the world's needy and deflecting attention from the root causes of conflict. It also breeds mistrust, which in turn makes arms reduction more difficult.

Forty years of the Cold War is enough! We should now devote the same energy, resources, and talent to building a real international security system in an interdependent world. This requires taking meaningful actions to reduce the incredible levels of current military spending. We can begin the process with the renunciation of dependence of nuclear weapons as a way to achieve "national security."

We are very pleased that the committee is holding this hearing regarding the prospects for further limitations on the explosive testing of nuclear weapon warheads. We hope this will be the first step in a renewed commitment on the part of Congress to support U.S. participation in a comprehensive test ban (CTB). In 1986, the Senate voted 64-35 to urge the President to resume negotiations on a CTB. Since then, Soviet arms control initiatives have helped to spur worldwide support for a ban.

U.S. Action Awaited.—Presently the world is waiting for a positive U.S. response, in the form of concrete actions, to Soviet President Mikhail Gorbachev's far-reaching arms control proposals and unilateral initiatives. The dramatic decrease in the Soviet threat provides opportunities in many areas which should be seized now. These include a halt to the nuclear arms race, dramatic reductions in current nuclear weapons stockpiles, and an overall decline in the East-West military confrontation. A CTB has long been seen as the *sine qua non* for halting and reversing the nuclear arms race; with U.S. support it could be achieved rapidly.

U.N. Amendment Conference.—Now more than 40 countries, including many U.S. friends, have called for a conference under the auspices of the U.N. to amend the 1963 Limited Test Ban Treaty (LTBT) and make it a comprehensive ban. As an original party to the treaty, the United States, as well as Great Britain and the Soviet Union, must be among the majority of signatories voting in support of any amendment in order for that amendment to pass. Consequently, support from the U.S. administration and Congress is essential if the amendment conference is to succeed.

Soviet Initiatives.—Beginning in August 1985, the Soviet Union observed an 18-month unilateral moratorium on nuclear testing, which was repeatedly extended, and was terminated only after numerous appeals to the United States to join the moratorium were rejected. Moreover, the Soviets have continued to affirm their willingness to halt testing, most recently at the United Nations on September 26, when Foreign Minister Eduard Shevardnadze stated that "the U.S.S.R. is ready to reinstate its moratorium on all nuclear explosions any day and hour, if the United States reciprocates." Shevardnadze also urged the United States to cooperate in making progress at the U.N. Conference on Disarmament testing negotiations and welcomed the initiative to extend the LTBT to prohibit underground tests. The U.S.S.R. also reiterated the Soviet position in an appeal to the U.S. Congress on August 1, 1989.

Other Testing Treaties.—Progress toward CTB has been delayed for years by U.S. insistence on additional verification measures for the Threshold Test Ban and Peaceful Nuclear Explosions Treaties. These negotiations on measuring the size of nuclear tests are unnecessary and irrelevant to reaching a comprehensive ban, which would prohibit nuclear tests of any size. This unconscionable delay subverts the will of the international community, as expressed through numerous resolutions at the United Nations and other diplomatic channels. There is no excuse for postponing a halt to nuclear weapons testing any further.

Deterrence.—Even if one accepts the validity of the nuclear deterrence theory, the United States—and the Soviet Union—already possess nuclear arsenals sufficient to maintain "secure" retaliatory forces for deterrence purposes into the foreseeable future. There is no need to add new systems to the stockpile; indeed, current forces can be reduced drastically. Less than 5 percent of United States strategic warheads would be sufficient to destroy the Soviet Union as a viable society.

Safety and Reliability.—Explosive testing is necessary only for development of new nuclear warhead designs. The safety and reliability of the U.S. nuclear weapons stockpile can be maintained through nonnuclear testing of components according to a 1985 letter to the House Foreign Affairs Committee from eight prominent

U.S. scientists, including a former director of Los Alamos National Laboratories. Even at the present time the United States conducts less than one nuclear explosion a year for this purpose. In fact, decreased confidence in nuclear weapons over time would be a positive consequence, as it would force both the United States and the Soviet Union to stop relying on their nuclear weapons for planning or fighting a war.

Environmental Contamination.—Testing is an integral part of the nuclear weapons production process, which has resulted in extensive environmental contamination and generated enormous quantities of deadly radioactive wastes. The cost to clean up this mess is expected to exceed \$100 billion, not including the long-health effects from exposure to radioactive materials in our air, ground, and water. An end to nuclear testing would at least stop this massive problem from becoming even larger. Currently, many of the U.S. nuclear weapons production facilities are closed down for safety reasons, making this a highly appropriate time to call a halt to this aspect of the nuclear arms race.

Treaty Obligations.—The administration's insistence on continuing nuclear testing contradicts U.S. treaty obligations contained in the 1963 Limited Test Ban Treaty (LTBT) and 1970 Non-Proliferation Treaty (NPT). In the LTBT, the United States declared its intention "to achieve the discontinuance of all test explosions of nuclear weapons for all time. . . ." and pledged its determination "to continue negotiations to this end. . . ." In the NPT, recalling the declaration made in the LTBT, the parties undertook a legally binding commitment "to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control."

Since that time arms control negotiations have made some progress on limiting the numbers and locations of nuclear weapons deployments. Yet, the remaining stockpiles are still capable of destroying the world as we know it many times over. The current draft of the START treaty, for example, would reduce total strategic nuclear warheads by only 30-to-35 percent, returning the two countries' stockpiles to approximately their 1981 levels. Worse, it fails to address the even more destabilizing "modernization" race, which allows new, more accurate systems to be deployed even as the older weapons are negotiated away. Achievement of the CTB is a critical element in halting this even more deadly qualitative arms race by preventing further development of these destabilizing weapons by *both* the United States and the Soviet Union.

Role of Congress.—Presently, the U.N. amendment conference offers the best chance to make a long overdue break with the nuclear arms race. The Congress can play an important role by showing its support for a CTB amendment, by urging the administration to vote in favor of the amendment at the conference, and by expressing its willingness to ratify that amendment should the administration submit it to the Senate.

PREPARED STATEMENT OF PRESBYTERIAN CHURCH (USA)

The Presbyterian Church (USA) has a long history of support for the concept of a Comprehensive Nuclear Weapons Test Ban (CTB) as a modest and achievable step toward ending the arms race. Speaking through the voice of its annual general assembly, the Presbyterian Church (USA) has called twelve times for the completion and ratification of a CTB. The general assemblies of 1963, 1964, 1967, 1971, 1978, 1982, 1983, 1984, 1985, 1986, 1988, and 1989, have all called for a Comprehensive Test Ban. In particular, the 1986 general assembly called upon: those nations with nuclear weapons to negotiate and implement a Comprehensive Test Ban; and the President to renew the Comprehensive Test Ban negotiations.

It further commended the U.S. Congress for its request to the President to negotiate a Comprehensive Test Ban.

In support of these recommendations, the general assembly found that:

—Spending for the arms race is contributing to record budget deficits that threaten our nation's economic security while programs providing essential assistance to communities throughout the country are being cut back;

—A ban on nuclear weapons testing would promote the security of the United States by constraining new developments in the U.S.-Soviet nuclear arms competition and by strengthening efforts to prevent the spread of nuclear weapons to non-nuclear countries;

—A ban on nuclear weapons testing would be a concrete and easily achievable first step toward a complete halt and deep reductions of ever-expanding nuclear arsenals;

—A ban on nuclear testing can be verified with high confidence by a worldwide network of seismic monitors, satellites and other verification technology in operation by the United States and other nations.

The Presbyterian Church (USA) has also sought and encouraged its regional jurisdictions, presbyteries, to engage in careful study, theological reflection, and moral discourse on the matter of a Comprehensive Test Ban Treaty and to consider joining the general assembly in a call for a Comprehensive Test Ban Treaty. To date, seventy presbyteries (of 200 nationwide) have undertaken such a process and have voted to endorse a CTB.

In light of these considerations, the Washington Office of the Presbyterian Church (USA) urges the U.S. Senate to energetically support and encourage steps toward achieving a Comprehensive Nuclear Weapons Test Ban.

MARY JANE PATTERSON,
Washington Office Director.

PREPARED STATEMENT OF AMERICANS FOR DEMOCRATIC ACTION, INC.

American for Democratic Action strongly urges Senate support for a Comprehensive Test Ban Treaty by endorsing the call for an amendment conference to change the Limited Test Ban Treaty of 1963 to a Comprehensive Test Ban Treaty. We hope the Congress will pass a resolution in support of both. We sincerely believe that a comprehensive test ban would truly make the world safer for all people. The time is long overdue and the political situation ripe for support of this resolution.

PREPARED STATEMENT OF CONCERNED CITIZENS SPEAK, INC.

On October 23, 1989, Secretary General Javier Perez deCuellar opened an exhibition, "War and Peace," in the U.N. General Assembly public lobby. The Secretary General said that it is the mission of each of us living in the last decade of the century "to bring to a close the chapter on 'the century of war and violence' and to usher the 'century of hope without war.'" The Secretary's General remarks can be summed up by the Kenyan proverb "Treat the Earth well. It was not given you by your parents. It was loaned to you by your children."

Information from the Department of Disarmament Affairs at the U.N. states that for every 100,000 people there are 556 soldiers, but only 85 doctors. And, despite the ideals of disarmament proclaimed at the U.N., the trend for the policies of states, large and small, has continued to be provided by real or imagined threats to national security. Only recently have we seen hope that trend is not destiny.

The November issue of *The Bulletin of the Atomic Scientists* that there are still over 54,000 nuclear weapons held by the two superpowers. The just concluded Globescope 2000 meeting on sustainable development and the annual meeting of nongovernmental organizations at the U.N. in September both called for the establishment of a U.N. Natural Security Council under the aegis of the U.N. Environment Programme. Given worldwide concerns for the security of our planet environmentally, Concerned Citizens Speak in New York City calls upon all of our elected representatives to vote for an end to all testing of nuclear weapons. Testing only encourages development of new weapons. Continued further reductions in nuclear armaments is the only mature response to an ever-increasing call by the person in the street to ending the arms race.

RICHARD JORDAN, Vice President and
Chairman, Environmental Protection
Committee.

PREPARED STATEMENT JESUIT SOCIAL MINISTRIES

COMPREHENSIVE TEST BAN TREATY: A POSITIVE STEP TOWARD ARMS REDUCTION

My name is Patrick J. Conroy. I am a Catholic priest of the Jesuit Order, and I work at the National Office of Jesuit Social Ministries, located at 1424 16th St., N.W., in Washington. I am grateful for the opportunity to address the committee concerning the important matter of a comprehensive test ban.

The Jesuits are an order of religious men within the Roman Catholic Church. We are over 25,000 strong throughout the world, and nearly 4,800 of us are American citizens. In the United States, we administer 28 colleges and universities, 46 high schools, retreat houses, parishes, and various other ministries, serving people from all walks of life, from the extremely wealthy to the poorest of the poor.

The United States, as indeed the whole world, stands now at a turning point in history. For the first time in nuclear history, the tensions between the nuclear superpowers are relaxed enough to make tremendous gains toward a true and lasting peace possible.

At the same time, 41 nations-signatory to the Limited Test Ban Treaty of 1963, more than one-third of those who signed, have requested the convening of a conference of parties to the treaty to consider converting the treaty into a comprehensive test ban treaty. By the terms of the treaty, a majority of the signatory nations must agree to such an amendment, and the majority must include the United States, Great Britain, and the Soviet Union.

The Soviet Union has indicated its willingness to convene such a conference, in an appeal to the United States Congress from the Supreme Soviet of the Union of Soviet Socialist Republics dated August 1, 1989. In that appeal the Supreme Soviet indicated that the Soviet Union was "prepared to do everything necessary and possible for the earliest possible attainment" of the goal of a comprehensive test ban.

Year after year the leaders of the world, including Presidents of the United States and Secretaries General of the Soviet Union, have asserted and reassessed the need for an end to the arms race. Yet year after year more dollars and more rubles are spent building more numerous and sophisticated systems.

Every year those arguing for continued buildup claim the success of nuclear "deterrent" in keeping us out of war. While there has not been a worldwide war of the nature of World War II, or a conflict involving nuclear weapons since the advent of the nuclear age, it cannot be said with certainty that this is because of the nuclear "deterrent." There may be many different, and even unrelated reasons for the avoidance of these types of conflicts. What is certain is that the nuclear "deterrent" has not deterred numerous armed conflicts around the globe, some involving directly both the United States and the Soviet Union, and practically all involving indirectly both the United States and the Soviet Union.

WORLD PEACE: A NEW VISION

We all want a true and lasting peace in the world. Since its inception, the United Nations has had as its primary thrust the securing of peaceful dialog between nations at odds with one another.

But at the superpower level, it has not been the moral suasion of the United Nations that has dictated the method of attaining peace. That has been up to the policies of the United States and the Soviet Union, and in the United States, that policy has been dictated by the presuppositions and world view of the Pentagon, encouraged by the not insignificant lobbying of the arms producers.

It is time for a new vision, new presuppositions, a new world view.

Instead of seeking the ever-elusive perfect deterrent, or the technological breakthrough which will give us a decisive advantage, perhaps it is time for the United States to take the leadership role in proposing sincere confidence- and security-building measures. With embarrassing regularity, the Soviets have been offering concessions and proposals which appear, for the first time ever, to be designed to reduce the total number of nuclear weapons.

Until now the arms control agreements have restricted where nuclear weapons could be deployed (Antarctica 1959, Outer Space 1967, Latin America 1967, Non-Proliferation 1967, Seabed 1971), how they may be tested (Limited Test Ban 1963, Threshold Test Ban 1974, Peaceful Nuclear Explosions 1976), and numbers of nuclear weapons deployed (SALT I 1972, SALT II 1979, and INF 1987).

Although limitations of the location and number of nuclear weapons deployed is welcome and valuable, none of the mentioned treaties addresses the evermore destabilizing, qualitative "modernization" race, which allows new, more accurate systems to be deployed even as the older weapons are negotiated away. And it is this "modernization" which the Pentagon now tells us is absolutely necessary to make our "deterrent" credible.

At this point in history, the most powerful nation in all the world may be the superpower unwilling to join the nations of the world in seeking a conference to amend the Limited Test Ban Treaty, so that the world might enjoy a comprehensive test ban. The most powerful is the least secure; so insecure that it alone might

stand in the way of a comprehensive test ban, a ban which the joint experiments of Soviet and American scientists in 1988 demonstrated could be reliably verified.

Many voices have been crying out, so far in the wilderness, for a change in the superpowers' priorities. And so far, the most hopeful signs of a change have come from the Soviet Union. Let us not, as a nation, be shamed by the signs of these times. Let us not repeat the tired refrain that our deterrent must be credible. A world gripped by the terror of total destruction finds the threat of our nuclear stockpile to be quite credible.

NATIONAL SECURITY

Within our own Nation, voices have been crying out for change from the very beginning of the nuclear arms race. Not everyone has been convinced that more and more weapons ensure our national security.

One different voice belonged to Dwight David Eisenhower, who may have understood national security better than the military establishment when, way back in the 1950's, the retired five-star general was leaving office as President of the United States. He warned us about the danger of the military-industrial complex, and of the terrible trap of arms buildups when he said:

Every gun that is fired, every warship launched, every rocket fired, sign signifies, in the final sense, a theft from those who hunger and are not fed, those who are cold and are not clothed. This world in arms is not spending money alone. It is spending the sweat of its laborers, the genius of its scientists, the hopes of its children. * * * This is not a way of life at all in any true sense. Under the cloud of threatening war, it is humanity hanging from a cross of iron.

When we look at the present economic situation in our own country today, we cannot help but be awed by President Eisenhower's prophetic words.

Every day we can read about laborers and entire communities held hostage by arms contractors, and threatened with loss of jobs by any military cuts. For example, the recommendations of the Defense Secretary's Commission on Base Realignment and Closure, in early 1989, to reduce and shut down 86 military bases will result in a net elimination of 7,996 civilian and 12,931 military jobs.

The solution to this dilemma is not more weapons systems, more weapons contracts, which further indenture our laborers to the arms race, but constructive new ways of diverting funds from wasteful arms production to domestic infrastructure. Economic conversion measures, for example, are one such diversion.

In 1984, Paul Volcker of the Federal Reserve Board predicted that the richest economy of the world, that of the United States, was on the verge of becoming a net debtor. He was correct, and the clear cause was the tremendous arms buildup, which had the hidden effect of placing a drain on productive investment.

According to *Business Week* of June 12, 1989, the Defense Department's portion of the Federal research and development dollar had risen from 45 percent to over 67 percent from 1979 to 1989, and approximately 30 percent of all scientists and engineers were employed in defense-related research and production. This diversion of resources and scientific expertise from the domestic sector has led to a low level of productivity growth for the United States compared with other industrial countries.

Finally, the national debt has placed a stifling burden on our children. At the end of 1980, the Federal debt was \$914.3 billion. In the following 8 years, while military spending and debt interest were the major source of growth in Federal spending, the Federal debt grew to \$2.6 trillion.

Despite all this, the Pentagon would have us continue on this course, and "modernize" our nuclear "deterrent."

A much less expensive, less wasteful way of securing national security would be to cap the production of nuclear materials now with a comprehensive test ban, and address the domestic problems faced by this Nation first.

Recent public opinion polls indicate the willingness of Americans to accept a substantially lower level of military spending. The "Soviet threat" no longer competes with legitimate concerns about the national debt, the drug war, homelessness, and myriad economic problems.

ANOTHER SENSE OF PEACE

While I have touched upon what I perceive to be a growing urge throughout the world for a new understanding of peace in an overly armed world, and an understanding of national security diverging from the traditional "deterrent" model, others can much more expertly and eloquently speak of those things. An equally

urgent, and too frequently unheard consideration is that suggested by our Nation's Judeo-Christian heritage.

In 1983 the National Conference of Catholic Bishops addressed the militarization of the national economy, and the increasing menace of the nuclear arms race in its pastoral letter of war and peace: *The Challenge of Peace: God's Promise and Our Response*. The document was not an unequivocal condemnation of the defense of a people from an unjust aggressor. Rather, the document reasserted this longstanding moral teaching of the Church. But given the currently evolving international scene, the document's consideration of proportionality is especially pertinent:

In terms of the arms race, if the real end in view is legitimate defense against unjust aggression, and the means to this end are not evil in themselves, we must still examine the question of proportionality concerning attendant evils. Do the exorbitant costs, the general climate of insecurity generated, the possibility of accidental detonation of highly destructive weapons, the danger of error and miscalculation that could provoke retaliation and war—do such evils or others attendant upon and indirectly deriving from the arms race make the arms race itself a disproportionate response to aggression?

This question has always been answered with an adamant and expensive "No" by the Pentagon. It is time to hear another voice.

Given an honest appraisal of the economic crisis within the United States, the prophetic vision of the Judeo-Christian Bible must be given consideration. the prophets Jeremiah and Isaiah both condemned the leaders when, against true security, they depended upon their own strength or alliances with other nations rather than trusting in God (Jer. 37:10; Is. 7:1-9; 30:1-4).

CONCLUSION

Today there are many voices, perhaps prophetic, from within the United States and from around the world challenging the longlived "security" of the nuclear "deterrent." Let us seize this moment, and rejoice together that marvelous changes are occurring throughout Eastern Europe. The day has come when we can begin to create a new vision of peace, and live with a security assured by mutual trust and familiarity, not by mutually assured destruction.

Let us move forward to an amendment conference for a comprehensive test ban. Thank you very much.

